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The Metabolism and Function of Vitamin D[1]

By H. F. DeLUCA, PH.D.[2]

Since the brilliant work of Windaus and his collaborators (Windaus *et al.,* 1936) in elucidating the structure of vitamin D_3 and other derivatives of importance, the use of vitamin D in clinical medicine appeared to be a closed book. Certainly vitamin D and its derivatives became available to the clinician at very low cost and much physiologic information was available which governed their use in the treatment of bone disease. The existence of vitamin D-resistant diseases, such as renal osteodystrophy, familial hypophosphatemia, pseudo-vitamin D deficiency disease and hepatic rickets, however, makes obvious that the vitamin D story is not yet a closed book. Why do some sporadic cases of rickets fail to respond to vitamin D therapy? What is the genetic defect in the pseudo-vitamin D deficiency disease or in the familial hypophosphatemia? Why are certain hypoparathyroid patients resistant to vitamin D therapy? Finally, why in cases of excessive renal damage is there a failure of the intestinal transport mechanism to respond to vitamin D therapy? Recent developments in the investigation of the mode of action of vitamin D and its functional metabolism have opened many new possible explanations of these diseases but, more important, have resulted in the discovery and availability of new forms of vitamin D to be used in clinical practice. It is to these points that I shall address my remarks.

The disease rickets and the disease osteomalacia can best be defined from a basic science point of view as a failure of calcification of organic matrix of bone to take place at an adequate rate (DeLuca, 1967). The collagen fibrils which are elaborated by the osteoblasts and condrocytes fail to calcify. It is the mineral component of bone on the surface of the collagen fibrils that imparts the rigidity to the bony structures. With a failure of mineral deposition, the collagen fibrils do not attain the rigidity necessary for its important structural function. As a result, the bones are unable to support the weight of the animal; they become twisted and malformed. Eventually the disease is terminal because of collapse of the chest cavity and the resultant secondary failure of the vital organs, most likely because of secondary pulmonary infection.

The failure of calcification in vitamin D deficiency which results in osteomalacia or rickets was believed to be a direct failure of

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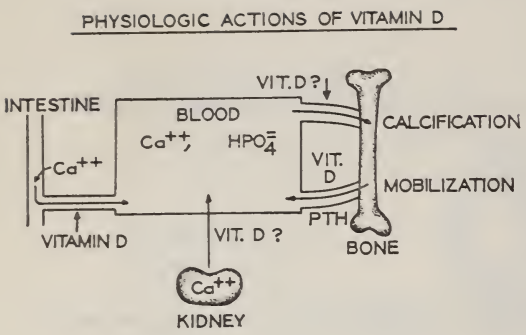

FIG. 1. Schematic representation of the known functions of vitamin D.

the calcification process which was in some way mediated by vitamin D. The calcification end-effect, therefore, misled basic scientists in their quest for the mechanism of vitamin D action. After some 40 years it is quite evident that the major defect in rickets and osteomalacia is not the failure of the calcification mechanism *per se* but rather is a failure in supply of calcium and phosphate to the calcification sites. It has long been known to the clinician that in rickets there is a very low calcium-times-phosphate product of the plasma (Shipley *et al.*, 1925). Neuman and Neuman (1958) in their book on bone mineral, brought out the important concept that blood is normally supersaturated with regard to bone mineral and that the calcification process can be considered one in which there is nucleation by the collagen fibrils of a supersaturated solution. In vitamin D deficiency (Neuman, 1958), the plasma is undersaturated with regard to bone mineral; thus calcification fails. It is important to note, however, that vitamin D may well have an additional effect on the transport of calcium and phosphate across osteoblastic membrane to the calcification sites and thus may participate at the bone site in aiding the calcification process. This possibility has not been adequately investigated, and in fact there is no firm evidence either clinical or experimental which will support this interesting possibility. Certainly the major if not sole effect of vitamin D in the cure of rickets and osteomalacia is an elevation of the plasma calcium and phosphate product to supersaturated levels.

An important question, therefore, is how does vitamin D bring about the elevation of plasma calcium and phosphate (Figure 1)? Perhaps the best known action of vitamin D at the physiologic level is to improve calcium and secondarily phosphate absorption in the small intestine (Wasserman, 1963). Recent work in this area has demonstrated quite conclusively that this is a cation-oriented active transport mechanism in which calcium is transferred from the lumen of intestine to the plasma by a process which requires metabolic energy and which pumps calcium against an electrochemical-potential gradient (Schachter, 1963; Wasserman *et al.*, 1961; Martin and DeLuca, 1969). This, therefore, represents one mechanism whereby the vitamin can elevate plasma calcium and phosphate concentration. The vitamin has still another function inasmuch as it mediates the mobilization of mineral from previously formed bone by an active cellularly mediated process (Carlsson, 1952; Nicolaysen and Eeg-Larsen, 1956). This action might appear to be paradoxical in that it results in decalcification of bone rather than calcification. However, this mechanism must be viewed from its overall effect on the elevation of plasma calcium and phosphate. The parathyroid hormone augments the vitamin's action and provides the fine adjustment in the mobilization mechanism (DeLuca *et al.*, 1968). The action of the hormone, however, requires the presence of vitamin D (Rasmussen *et al.*, 1963; Harrison and Harrison, 1964). The bone mobilization mechanism, working in concert then with the intestinal calcium transport mechanism, provides the means for elevating plasma calcium and phosphate to supersaturation levels, which are in turn necessary for normal mineralization of bone.

There is a question of whether vitamin D

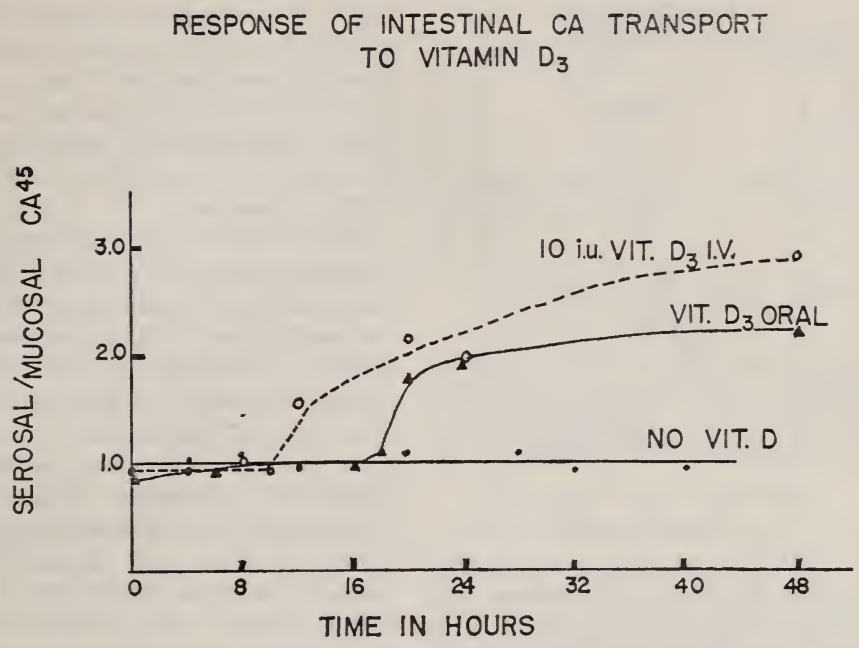

FIG. 2. Intestinal calcium transport response of vitamin D-deficient rats to 0.25 μg (10 IU) of vitamin D_3 given either orally or intravenously at 0 time. Transport was measured by the everted sac method (Zull *et al.*, 1965).

plays a role in renal tubular phosphate and calcium reabsorption (Gran, 1960). Thusfar, experimental evidence is lacking, and this very interesting possibility remains a major uninvestigated possible physiologic mechanism of vitamin D action.

One very important aspect of vitamin D action was perhaps responsible for initial investigations leading to some of the important results which I hope to discuss. Figure 2 shows that following a physiologic dose of vitamin D given intravenously there is approximately a 10–12 hour lag in time before intestinal calcium transport ensues (DeLuca, 1969). A similar but longer lag period is observed when bone mineral mobilization responses to the vitamin are measured (Blunt *et al.*, 1968a). These results raised the question as to what might be happening to vitamin D and the organs which carry out the functions of the vitamin.

An antibiotic, actinomycin D, has proved to be an important biological tool in investigating mechanisms involving the utilization of genetic machinery. This antibiotic binds to the guanosine moiety of deoxyribonucleic acid and prevents the utilization of information from the genetic machinery. When this antibiotic is given prior to vitamin D, it prevents completely the intestinal transport response as shown in Figure 3 and the mobilization of bone mineral as shown in Figure 4 (Zull *et al.*, 1965). If the antibiotic is given after the vitamin D, it can no longer prevent the responses to the vitamin (Zull *et al.*, 1966). These experiments led to the conclusion that transcription of deoxyribonucleic acid into messenger ribonucleic acid and subsequent protein synthesis must be involved in the vitamin D mechanism. It was attractive to assume that this meant the assembly of a protein or proteins which might be responsible for calcium absorption in response to the vitamin. This hypothesis has remained until very recently. In any case, it is clear that transcription of DNA or the utilization of informa-

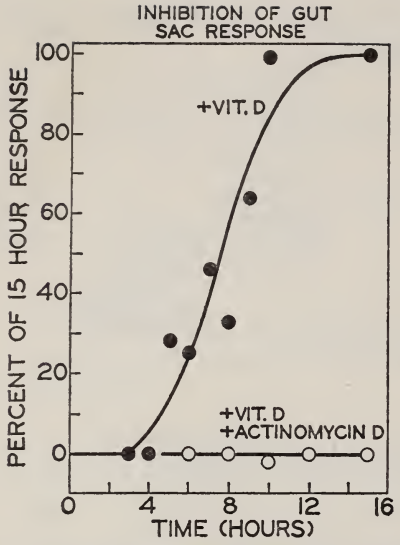

FIG. 3. Actinomycin D inhibition of vitamin D induced rise in intestinal calcium transport. Vitamin D-deficient rats were given 1 μg/g of actinomycin D intraperitoneally and 1 hour later they were given 2000 IU vitamin D_3 intraperitoneally. They were killed 15 hours later and intestinal calcium transport was determined as in Figure 2.

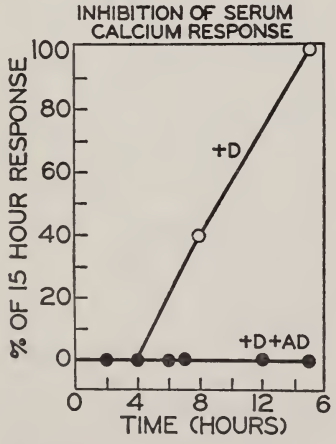

FIG. 4. Actinomycin D inhibition of vitamin D-induced bone mineral mobilization. Vitamin D-deficient rats maintained on a low calcium diet were given actinomycin D and vitamin D as described in Figure 3 but serum calcium was determined 15 hours after the vitamin D (Zull *et al.*, 1966).

tion from the genetic machinery and synthesis of new protein might be responsible for some of the lag in time following vitamin D administration. This result also opens the very great possibility that some genetically related vitamin D-resistant diseases may well be the lack of a gene which would provide the information necessary for the synthesis of a protein or proteins involved in vitamin D-induced intestinal calcium transport.

Another very important insight into the reason for the lag in vitamin D action came as a result of the synthesis of very high specific activity radioactive vitamin D in our laboratory (Neville and DeLuca, 1966). Using this material, it was possible to show that prior to the intestinal calcium transport response or the bone mobilization response the radioactive vitamin is transformed into metabolites (Figure 4). By means of silicic acid column chromatography it could be shown that a substance which is more polar, that is less lipid soluble, is formed from radioactive vitamin D (Norman *et al.*, 1964; Lund and DeLuca, 1966). When this metabolite was given to rachitic rats or chicks, it was more effective in curing rickets, but more importantly it acted more rapidly than the parent vitamin (Morii *et al.*, 1967). By means of extensive chromatography and development of new methods, the major component of this polar metabolite fraction was isolated and identified as 25-hydroxycholecalciferol or 25-hydroxy vitamin D_3 (25-HCC) shown in Figure 5 (Blunt *et al.*, 1968b). By a similar group of experiments, the 25-hydroxy form of vitamin D_2 was also

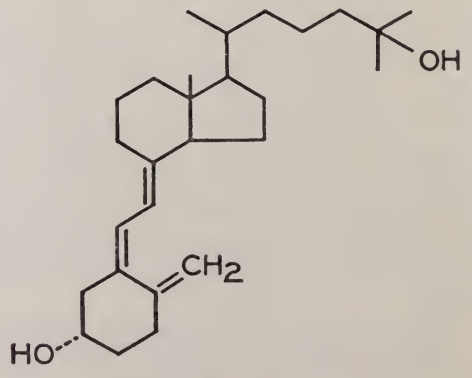

FIG. 5. 25-Hydroxycholecalciferol (25-HCC).

isolated and identified (Suda *et al.,* 1969). The 25-HCC proved to be one and one-half times more effective than vitamin D_3 in the treatment of rickets in rats and poultry. Of the 10–12 hour lag period observed in response to 10 IU of vitamin D_3, only some three hours now remain when the 25-hydroxy form of the vitamin is given (Blunt *et al.,* 1968a) (Figure 6). This is true both for the intestinal transport mechanism and for the bone mineral mobilization mechanism. These results strongly suggest that the 25-hydroxy form of vitamin D represents at least the initial metabolic modification in the vitamin before it can function.

When isolated cultures of embryonic bone are treated with the 25-hydroxy derivatives of vitamin D, they induce the mobilization of bone mineral. However, massive amounts of vitamin D_3 in the same system are without effect (Trummel *et al.,* 1969). During this mobilization phenomenon, the 25-hydroxy form of vitamin D is not changed, and this fact suggests that the 25-hydroxy analog of the vitamin might well represent the metabolically active form in the mobilization of bone mineral. The hydroxylation of vitamin D in the 25-position takes place in the liver, since, if the liver is removed from the circulation, an animal is unable to metabolize vitamin D at all (Ponchon *et al.,* 1969). The enzyme system from liver which hydroxylates vitamin D has been studied extensively (Horsting and DeLuca, 1969). It is not a standard steroid hydroxylation system and it is not inducible by such compounds as barbiturates. Of great importance, however, is that it is very strongly inhibited by its product. Dihydrotachysterol, which is a form of vitamin D specifically used to induce mobilization of bone mineral and which is very effective at large doses in comparison to vitamin D but is much less effective at small doses, must also be hydroxylated in the 25 position before it is effective (Suda *et al.,* 1970a). Of great interest is that the hydroxylation of 25-HCC is not inhibited by 25-hydroxydihydrotachysterol. These results could explain why vitamin D_3 is not as effective as dihydrotachysterol at high concentrations. The liver hydroxylates vitamin D_3 only to a small degree before product inhibition prevents its further hydroxylation. These mechanisms developed in the evolutionary process, perhaps, for the conservation of vitamin D, on one hand in the face of widely varying intakes and on the other hand in the face of large dietary intakes or when the organism is exposed to large amounts of ultraviolet light, thereby preventing toxicity. This 25-hydroxylation step, then, represents a control mechanism in the secretion of "active" vitamin D into the plasma. This provides additional evidence that 25-hydroxy vitamin D is a hormonal form of the vitamin which carries out the functions of the vitamin quite distant from its site of formation, namely, the bone and intestine.

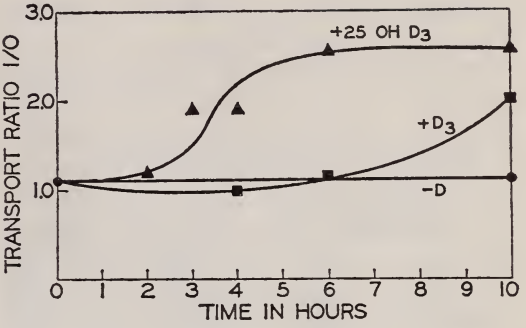

FIG. 6. Intestinal calcium transport response of vitamin D-deficient rats given 0.25 μg of either 25-HCC or vitamin D_3 intravenously at 0 time. The experiment was carried out as described in Figure 1.

To the clinician the discovery of the essentiality of 25-hydroxylation of vitamin D for its function presents the intriguing possibility that in vitamin D-resistant diseases there is a failure of this hydroxylation step and that there may well be a genetic defect in the formation of the vitamin D 25-hydroxylase. Unfortunately, there is no evidence for a disease in which there is a specific block in the 25-hydroxylation step. Such a mutation would undoubtedly be le-

thal since the organism would be unable to control his plasma calcium.

However, the 25-HCC has proved to be an effective therapeutic agent in the treatment of bone disease. For example, in the treatment of pseudovitamin D deficiency disease, the 25-HCC is four to five times more effective than vitamin D_3 (Fraser and DeLuca, unpublished results). In some cases of familial hypophosphatemia, a complete alleviation of symptoms occurs with 5,000 to 10,000 IU of 25-HCC per day (Seely and DeLuca, unpublished results). In other cases of familial hypophosphatemia even extremely high doses of 25-HCC have not succeeded in curing the disease (Yendt and DeLuca, unpublished results). In hypoparathyroidism the 25-HCC is extremely effective with as little as 2,000 IU per day, but in some of the vitamin D-resistant hypoparathyroid patients doses as high as 20,000 IU per day must be used (Pak *et al.*, 1970). Calcium absorption by patients suffering from azotemic chronic renal disease is markedly increased with doses of 25-HCC from about 5,000 to 10,000 IU per day (Avioli and DeLuca, 1970). However, in this disease, as will be seen later, 1,25-dihydroxy-vitamin D_3 will probably be much more effective since it is the metabolically active form of vitamin D in the intestine and is generated in the kidney. Of great importance in the use of 25-HCC are the following properties. First, it does not have to be hydroxylated in the 25 position before it is effective and thus is not subject to the product inhibition control mechanism. Second, it acts more rapidly than vitamin D_3. Third, it is much more rapidly metabolized and thus, if toxic levels are achieved, simple withdrawal of the drug will bring about alleviation of toxicity. This is to be contrasted with vitamin D, wherein, toxicity having been achieved, the patient remains in great danger for some time despite withdrawal of treatment. Often these patients must be treated with steroids, which in some way interfere with the metabolism and function of vitamin D.

The 25-hydroxy vitamin D is metabolized further very rapidly after its administration (Figure 7) (Cousins *et al.*, 1970a,b). Follow-

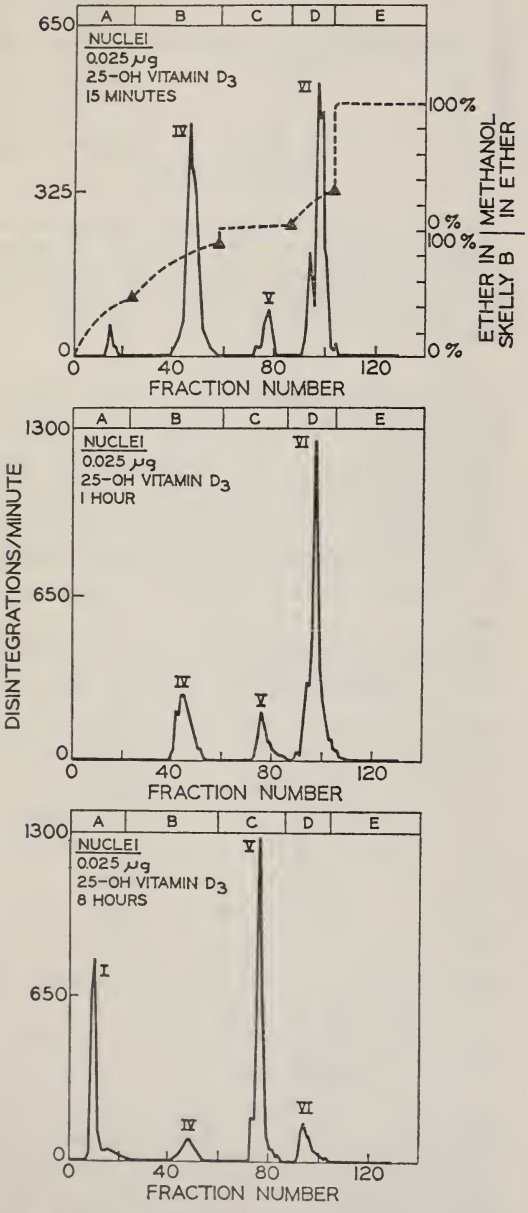

FIG. 7. The appearance of polar metabolites (peaks V and VI) in cell fractions of intestine of vitamin D_3-deficient rats given 10 IU [26,27]^{3}H-25-HCC intravenously at 0 time. The separations were carried out on silicic acid columns as described by Cousins *et al.* (1970a). Reprinted from *Biochemistry 9:* 1453, 1970 (reproduced with the kind permission of the copyright owner).

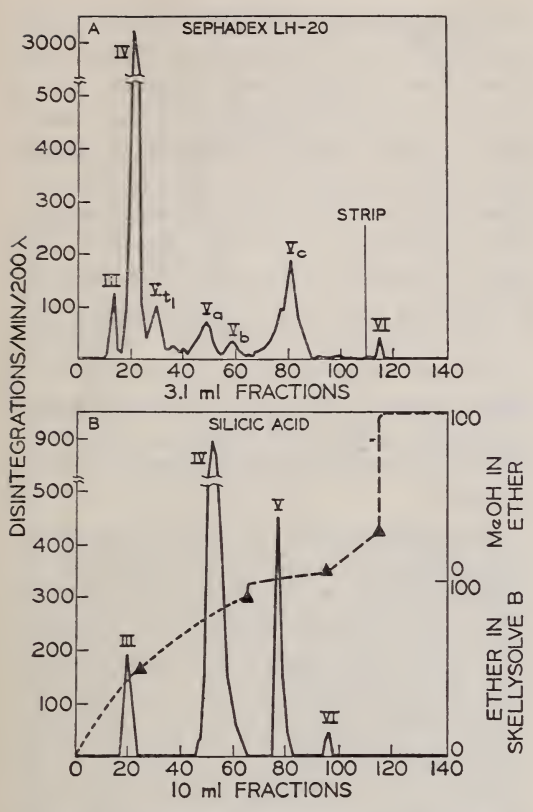

FIG. 8. Comparison of separation of peak V metabolites by silicic acid columns and LH-20 columns with a solvent of 35% petroleum:65% chloroform. The latter resolves the peak V from silicic acid into five radioactive components: IV = 25-HCC; III = vitamin D_3; Va = 21,25-DHCC; Vb is unidentified; V_{t_1} is unidentified; and Vc = 25,26-DHCC (Holick and DeLuca, 1971, reproduced with the kind permission of the publisher).

ing its administration, a number of polar metabolites are formed very rapidly and at least two prior to the initiation of intestinal calcium transport. By means of new and refined chromatography, these peak V polar metabolites have been resolved into at least five different compounds (Figure 8) (Holick and DeLuca, 1971). From the plasma two metabolites have recently been isolated and identified in our laboratory. The first of these is 21,25-dihydroxycholecalciferol (21,25-DHCC) (Suda *et al.*, 1970b). This metabolite is very effective in inducing bone mineral mobilization but has only slight intestinal calcium transport activity. Another metabolite, 25,26-dihydroxycholecalciferol (25,26-DHCC) (Suda *et al.*, 1970c), has significant intestinal calcium absorption activity but is unable to induce mobilization of bone. The importance of these metabolites in the function of vitamin D is not understood at the present time. However, these metabolites present the interesting and important possibility that the function of vitamin D can be separated by merely making different analogs of the vitamin. To the clinician it may be important to be able to stimulate intestinal calcium transport without stimulating bone mineral mobilization. In other cases, it may be important to stimulate bone mineral mobilization without stimulating intestinal calcium transport. It is possible that these metabolites will be useful in this capacity.

Perhaps the most important polar metabolite of 25-HCC known is that which is found in the intestine. Very rapidly after the administration of radioactive 25-HCC this metabolite appears in the intestine in large concentration (Figure 9). Its appear-

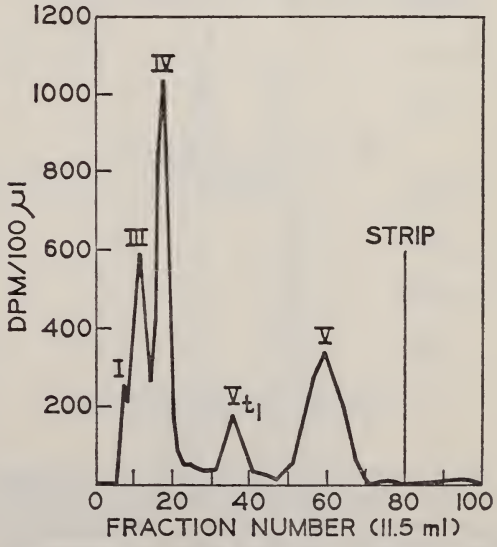

FIG. 9. The Sephadex LH-20 chromatographic profile of intestinal lipid extracts from vitamin D-deficient chicks given [1,2]^{3}H-vitamin D_3 24 hours earlier. The column (1 × 60 cm) was developed in 65:35 chloroform:petroleum. Peak V represents a homogeneous substance which was subsequently identified as 1,25-DHCC.

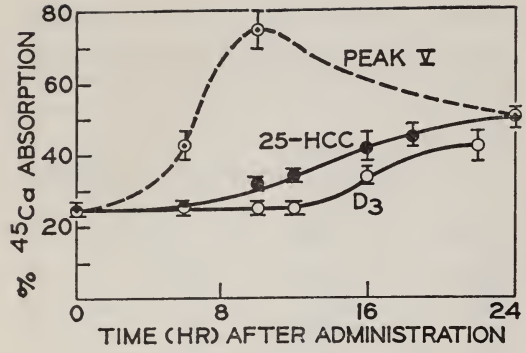

FIG. 10. Intestinal calcium absorption response of vitamin D-deficient chicks to 5 IU of vitamin D_3, 25-HCC or 1,25-DHCC (peak V) given orally in oil at 0 time. The assay (Omdahl *et al.*, 1971) involved the measurement of disappearance of ^{45}Ca from ligated loops of duodenum *in vivo*.

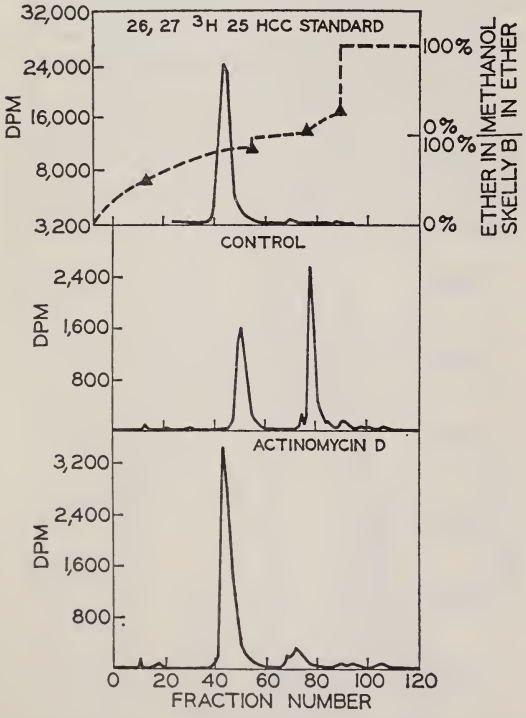

FIG. 11. Actinomycin D (1 μg/g body weight) inhibition of appearance of 1,25-DHCC (peak V) in the intestine after injection of ^3H-25-HCC. Vitamin D-deficient rats were given the actinomycin D intravenously and 2 hours later were given 10 IU ^3H-25-HCC. Eight hours later extracts of intestine were made and chromatographed on an LH-20 column as in Figure 8. Actinomycin D given after ^3H-25-HCC failed to inhibit.

ance precedes the intestinal calcium transport response to the 25-HCC. When this metabolite is isolated and administered to vitamin D-deficient chickens it acts much more rapidly than even 25-HCC in inducing intestinal calcium transport (Figure 10) (Omdahl *et al.*, 1971; Myrtle and Norman, 1971; Haussler *et al.*, 1971). However, the same metabolite is no better than 25-HCC in inducing bone mineral mobilization and is much less effective than even vitamin D_3 in the cure of rickets in rats (Omdahl *et al.*, 1971). These results suggest that this new metabolite might well represent the metabolically active form of vitamin D in the intestine.

The appearance of the peak V metabolite in the intestine is prevented by the prior administration of actinomycin D (Figure 11) or cycloheximide (Tanaka and DeLuca, 1971). If the actinomycin D is administered after the radioactive 25-HCC it is not able to block the appearance of the metabolite in the intestine. Thus, the actinomycin D-sensitive step in vitamin D function is not the formation of proteins in the intestine, but rather is the formation of factors necessary to convert 25-HCC to the peak V metabolite.

Intestinal calcium transport response to 25-HCC is blocked by the prior treatment with actinomycin D (Table I) (Tanaka, DeLuca, Omdahl and Holick, unpublished

TABLE I

FAILURE OF ACTINOMYCIN D TO PREVENT INTESTINAL CALCIUM TRANSPORT RESPONSE TO 1,25-DHCC

Actinomycin	Treatment*	Transport I/O ratio
−	—	1.7 ± 0.2 (4)
−	25-HCC	2.7 ± 0.1 (3)
+	25-HCC	1.8 ± 0.2 (4)
−	1,25-DHCC	2.9 ± 0.2 (4)
+	1,25-DHCC	3.1 ± 0.4 (4)

* 60 pmoles of metabolite i.v. Rats were killed 12 hours later. They were fed the adequate Ca^{++} + PO_4 diet 11 for 5 weeks prior to use in the experiment.

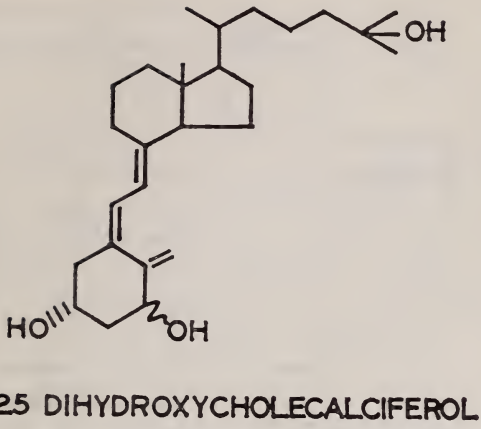

FIG. 12. Structure of peak V or 1,25-dihydroxycholecalciferol (1,25-DHCC).

results). However, intestinal calcium transport response to the peak V metabolite isolated from intestine is not blocked by actinomycin D treatment. These results provide strong, if not unequivocal, proof that the peak V metabolite or a metabolite of peak V must be the metabolically active form in the intestine and that it functions by a process not involving the retrieval of genetic information and probably not involving protein synthesis. This metabolite which is functional on the intestine has now been isolated in pure form in our laboratory, and its structure has been determined by mass spectrometry, ultraviolet spectrophotometry and other physical methods as 1,25-dihydroxycholecalciferol (1,25-DHCC) (Figure 12).

The 1,25-DHCC is formed in the kidney, inasmuch as nephrectomy prevents its formation, whereas ureteric ligation, which brings about the same degree of uremia, has no effect on its production (Figure 13) (Fraser and Kodicek, 1970; Gray, Boyle and DeLuca, unpublished results). Furthermore, homogenates and mitochondrial fractions of kidney tissue are able to carry out this conversion *in vitro*. The actinomycin D-sensitive step, then, in vitamin D function in the intestine occurs in the kidney, wherein 25-HCC in some way induces the formation of enzymes responsible for the hydroxylation of 25-HCC to the 1,25-DHCC, which is the metabolically active form of vitamin D in the intestine.

To summarize the functional metabolism

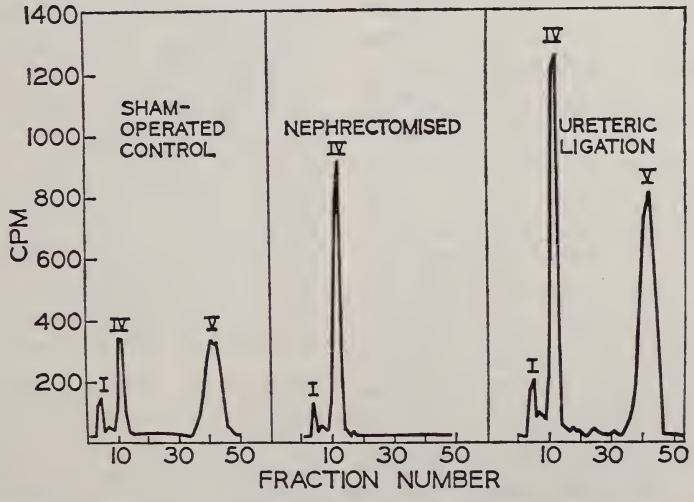

FIG. 13. Prevention of metabolism of ^{3}H-25-HCC to 1,25-DHCC by nephrectomy. Vitamin D-deficient rats were sham operated, nephrectomized or had their ureters ligated (ureteric ligation was carried out 6 hours before to induce a uremic condition comparable to nephrectomy). All rats were given 5 IU ^{3}H-25-HCC and killed 12 hours later. The intestinal extracts were chromatographed on LH-20 columns as described above. IV = 25-HCC; V = 1,25-DHCC.

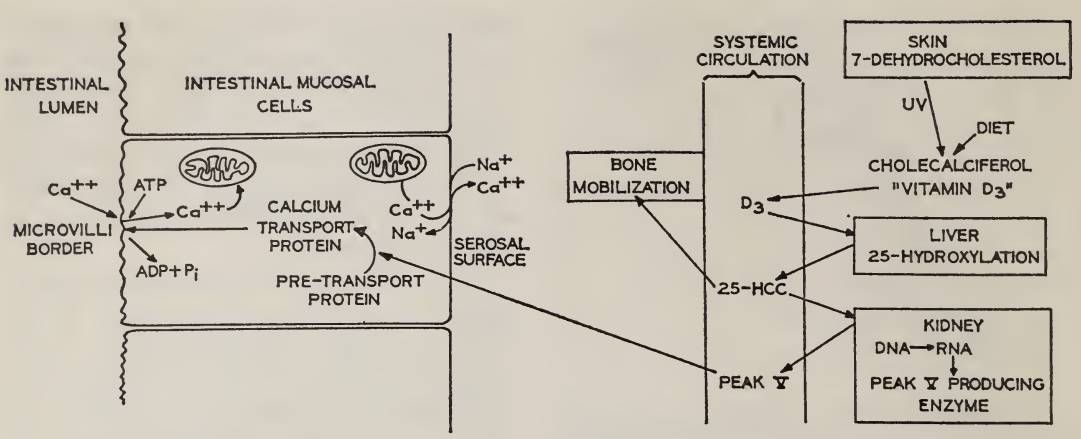

FIG. 14. Schematic representation of the metabolism and function of vitamin D_3. Note that peak V represents 1,25-DHCC.

of vitamin D, the following pathway can be traced (Figure 14). Vitamin D_3 is either taken in the diet or is produced in the skin by irradiation of 7-dehydrocholesterol. The vitamin D_3 is picked up by the liver from the plasma and is hydroxylated to 25-HCC by an enzyme in liver mitochondria. The amount of 25-HCC made is regulated by product inhibition by the amount of 25-HCC in the liver cells themselves. 25-HCC appears in the plasma as a hormonal form of the vitamin. Present evidence is that the 25-HCC can work directly to induce bone mineral mobilization. The 25-HCC goes to the kidney and, by a process involving transcription of DNA and protein synthesis, it induces the formation of enzymes which hydroxylate 25-HCC further to the 1,25-DHCC. This hydroxylation also takes place in the mitochondrial fractions of the kidney. The 1,25-DHCC makes its appearance in the intestinal mucosa where it is involved in the assembly of a calcium-binding protein from a precursor protein. This protein makes its appearance on the surface of the intestinal microvilli where it probably interacts with membrane components to form the transport system for calcium. This transport system can be measured as a calcium-dependent adenosine triphosphatase. This system then brings about the transfer of calcium into the intestinal cell by a process which requires ATP. Once the calcium enters the cell it is sequestered by mitochondria. When the mitochondria enter a region of the cell which is depleted of calcium, this cation leaves the mitochondria. This region is near the serosal surface, where a downhill sodium gradient brings about the expulsion of calcium from the cell into the serosal medium. The sodium to potassium gradient is, of course, maintained by the well-known sodium-potassium transport system. The mechanism of the transcellular transport of calcium under the influence of vitamin D must be recognized as strictly speculative, since the only facts known are: 1., that a calcium-binding protein does exist and is formed following vitamin D administration; 2., that there is a precursor protein to the calcium binding protein; 3., that there is a calcium dependent adenosine triphosphatase which appears in the brush borders of intestinal cells following vitamin D administration, and 4., that sodium is required for the expulsion of calcium into the serosal medium. It should be noted that the actinomycin D-sensitive step for vitamin D action, at least in regard to intestinal calcium transport, is in the kidney, where 25-HCC must induce the formation of an enzyme which brings about its further hydroxylation to the 1,25-DHCC. Once the

1,25-DHCC is formed, it can function by a process not involving genetic machinery, such as the conversion of a precursor protein to the calcium-binding protein.

Because the 1,25-DHCC is formed in the kidney, it is attractive to consider that the major defect in cation metabolism in chronic renal disease is a failure to form the 1,25-DHCC. The absence of this metabolite renders the intestine essentially vitamin D-deficient. On the other hand, 25-HCC can satisfy the requirement of the bone for its active form of vitamin D. Thus the bone is vitamin D-sufficient and the intestine is vitamin D-deficient. The lowered intestinal calcium absorption which results brings about a transient hypocalcemia which in turn stimulates the secretion of parathyroid hormone. This secondary hyperparathyroidism then brings about bone mineral mobilization at a high rate. This mobilization then causes the well-known osteodystrophy observed in these patients. The osteomalacia syndrome which is also observed in chronic renal disease merely reflects the failure of calcification as a result of defective absorption of calcium from small intestine. Although this concept may be an over simplification of what happens, it may be a useful one, since once the 1,25-DHCC becomes available it may well represent an important therapeutic agent in the treatment of chronic renal disease. This and other applications of the metabolites of vitamin D in the treatment of bone disease certainly reopen the closed book of vitamin D and present the clinician with many new approaches to the treatment of bone disease.

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The Doctor Shortage: A Contrived Issue[1]

By OSLER L. PETERSON, M.D.[2]

It seems particularly fitting to give the Weir Mitchell Oration in this elegant Victorian Hall. The adjectives 'elegant Victorian' also describe Weir Mitchell though they do not do justice to this man of many talents. John Mills had a somewhat different idea in mind when he said that medicine needs 'multivalent' men, but his term is appropriate for our subject. Weir Mitchell was a poet, novelist, general practitioner, specialist physician, distinguished investigator, world traveler. He was a writer of some merit; Richard Walter remarked that his writing style had enough 'eccentricity of expression' to make absorbing present day reading. As physicians we honor him for his monumental clinical studies.

One facet of Weir Mitchell's experience cannot help interest one this evening. In 1850, as a young physician, he visited London. This was a year after John Snow's landmark study of the Broad Street cholera epidemic from which he deduced that there was something in the waste of cholera patients which got into the drinking water and thus provided the mechanism by which cholera was disseminated. This preceded Pasteur's publications by about a decade.

During this visit, Mitchell called on Paget, whose name has become an eponym for an abscess, a cell, and a disease. Paget was also one of the first persons to study physician manpower (1). His interest led him to follow the careers of 1,000 Bart's Medical School graduates to answer a question customarily posed by Mr. Abernathy in his first meeting with the entering medical students. It was said that Mr. Abernathy, as he surveyed the men in the anatomical theater, asked, as if with painful doubts, "God help you all! What will become of you?" In Paget's opinion, 28 percent of the Bart's graduates were failures or represented wastage of another form. He divided the group as follows:

41 died during pupilage
87 died within 12 years of beginning practice
96 left the profession
56 failed utterly
124 had very limited success

The interesting thing is that Paget's criterion was mainly an economic one. In contrast to the present moment when a medical degree is a most reliable form of social security, making a living in the practice of medicine in the mid-nineteenth century was a risky business and evidently risky to survival. However, there were some successes. About 3 percent achieved chairs of anatomy or in other fields at distinguished universities, or developed large and fruitful practices. Paget also noted that a career in medical school was likely to forecast a life in practice. He mentions that one of the 1,000 graduates who later became an infamous murderer—and was hung for it—had little to recommend himself as a medical student.

Our present manpower problems are quite different from those of Paget's time. Doctors are overworked and the queues of patients waiting to see the doctor are becoming longer and longer. When presidential counsellor, Mr. Patrick Moynihan, re-

[1] Weir Mitchell Oration XIX, The College of Physicians of Philadelphia, 6 January 1971.

This paper is based upon studies performed for and supported by the Medical Care and Education Foundation, the Regional Medical Program for the Tri-State Area of New Hampshire, Massachusetts and Rhode Island. Professors Albert Chevan and T. L. Wilkinson of the University of Massachusetts aided in the preparation of the reports upon which this address is based.

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TABLE I

Average Number of Visits per Person

1966–67	4.2
1963–64	4.5
1958–59	4.7

TABLE II

Physicians Consulted by the Population (1966–67)

General Practitioners	64.0%
Osteopaths	1.2%
Specialists	34.1%
Unknown	0.6%
	99.9%

TABLE III

Average Number of Patients Seen per Day by Graduates of Western Reserve Medical School

General Practitioner	30
Pediatricians	25
Internists	21
General Surgeons	20
Obstetrician-Gynecologist	16
Psychiatrists	7

cently returned to Harvard to lead a seminar, he was asked about prospects for funding medical care in the years ahead. He remarked that the government had put enormous funds into the medical field without getting more medical care to the people. As he emphasized, the people of America know what they want and it is the government's business to know what they want and to supply it, if it can. If I am to prove that the physician shortage is a contrived issue, I will have to try to be a good doctor and first make a diagnosis.

Table I illustrates why our society feels it is so difficult to obtain medical care. The average number of per capita physician visits has been dropped from 4.7 visits in 1958 to 4.2 ten years later (2). This represents 10 to 11 percent less medical care. Because the queues of patients waiting to see the doctor are often a month or longer, it is not surprising that care for acute conditions is disappearing most rapidly.

The public unhappiness is, no doubt, conditioned mainly by the fact that they receive less of this service than they were used to receiving. In Sweden, a country with an outstanding health record, there are on average 2.8 visits annually per person, but this small number of visits does not appear to have caused any notable discontent (3). In any given year a higher percentage of Swedes than Americans see a physician at least once (78 percent vs. 70 percent), but the Americans make more visits (4). It may be that it is the ease of access to the system, which appears to be easier in Sweden, that creates satisfaction or assurance in the mind of the consumer.

Table II shows which physicians the U.S. population was visiting in 1966–67 to get ambulatory care. The important and discouraging fact is that approximately ⅔ of all visits in 1967 were to general practitioners (2).

Matters are almost certain to get worse before they get better, as shown by estimates of die-off rates for general practitioners. If these practitioners continue to disappear at the same rate as during the past few years, they will all be gone in 20 to 30 years, leaving behind them a very important void (5). The general practitioner has normally provided easy accessibility to medical care. He has been the physician characterized by a high "out-put" as the following table, prepared by Dr. Mawardi (6), illustrates (Table III).

The general practitioner will, of course, be replaced to some extent by the general internist and pediatrician, the other physicians who normally provide comprehensive and continued care to their patients and so are, in the best sense, primary or family physicians. If you will accept the thesis that patients feel the shortage of medical care because the accessible and readily available primary care which the general practitioner

has provided is decreasing, the prospects for the immediate future can be examined more closely.

Some statistics which were prepared for the Tri-State Regional Medical Program will illustrate what these prospects are (7). These statistics, though limited to the Tri-State Regional Medical Program encompassing New Hampshire, Massachusetts, and Rhode Island, are replicable in most parts of the U.S. In Table IV, as can be seen, the 10,000 physicians of this area divide into two approximately equal groups with half under age 50 and half 50 years or older. However, the family physicians comprise 51.5 percent of all physicians age 50 years and older, but only 32 percent of the younger group. Clearly, fewer family physicians are being recruited, whereas the specialists and superspecialists are increasing, since they constitute a majority of the younger physicians.

Before proceeding further with the growth and decline of family physicians, it is necessary to raise the question of what proportion of physicians should be in family practice. From a recent study of prepaid group practices we know that they provide about 100 physicians for each 100,000 population served (8). Fifty-seven percent of these were in the fields of pediatrics or internal medicine which were described above as primary or family care. In the Tri-State Region, 41.7 percent of all physicians are in primary care. Presumably prepaid group practices, which are constrained by a practical need to remain solvent and competitive, will provide primary and specialist physician manpower in proportions suitable to the needs of the population served. This practical standard is about as reliable as any now available. The group practice experience led me to examine the situation in England where there seems to be great consumer satisfaction with the National Health Service. If we exclude hospital trainees, as I have done in all my statistics, England is found to have approximately 59 percent of its national health service physician manpower in general practice.

TABLE IV

Physicians by Type of Practice and Two Age Groups for the Tri-State Region* (Excluding Interns and Residents)

Physician Type	Total		Under 50 Years		50 Years and Over	
	No.	%	No.	%	No.	%
All types	10,002	100.0	5,008	100.0	4,994	100.0
Family Physicians	4,174	41.7	1,601	32.0	2,573	51.5
Specialists	4,668	46.7	2,605	52.0	2,063	41.3
Teaching/Research/Superspecialists	1,160	11.6	802	16.0	358	7.2

* Federal physicians excluded.

TABLE V

Age Distribution of General Practitioners, Internists and Pediatricians of the Tri-State Region*

Age	General Practitioners		General Internists		Pediatricians	
	No.	%	No.	%	No.	%
Under 30	18	0.7	18	1.5	6	1.1
30–39	145	5.9	360	30.0	158	30.2
40–49	353	14.4	372	30.9	172	32.9
50–59	840	34.3	249	20.7	98	18.7
60–69	704	28.7	148	12.3	58	11.1
70–79	308	12.6	41	3.4	23	4.4
80 and over	83	3.4	14	1.2	8	1.5
Total	2,451	100.0	1,202	100.0	523	99.9

* Federal physicians excluded.

With the above background one can then examine the detailed age distribution of all primary physicians in the Tri-State Region. (Table V).

The very high age of the general practitioner and the virtual disappearance of new recruits is illustrated by their age distribution. The other primary physicians, the general internists and pediatricians, are on the contrary groups that have enjoyed rapid recent growth as is evident from the fact

TABLE VI

NUMBER, PERCENT DISTRIBUTION, AND NUMBER OF PHYSICIANS PER 10,000 POPULATION BY METROPOLITAN AND NON-METROPOLITAN AREAS

Type of Physician	All Areas	Metropolitan Areas		Non-Metropolitan Areas	
		Central City	Ring	10,000 and Over	Under 10,000
All Physicians					
Number	15,636	7,424	4,979	1,843	1,590
Percent	100.0	47.5	31.8	11.8	8.9
Ratio	14.9	22.9	12.0	14.8	7.6
Family Physicians					
Number	6,530	2,502	2,346	792	890
Percent	100.0	38.3	35.9	12.1	13.6
Ratio	6.2	7.7	5.7	6.4	4.8
Specialists					
Number	7,338	3,757	2,271	902	408
Percent	100.0	51.2	30.9	12.3	5.6
Ratio	7.0	11.6	5.5	7.3	2.3
Superspecialists					
Number	1,768	1,165	362	149	92
Percent	100.0	65.9	20.5	8.4	5.2
Ratio	1.7	3.6	0.9	1.2	0.5

that about two thirds are less than 50 years old and one third is 50 years or greater. However, it is notable that both of these groups may now have stopped growing to judge from the similarity of the numbers in the age groups 30–39 to 40–49 years. If this stabilization has occurred, it appears that less than a third of all physicians in the Tri-State Region will be engaged in family practice in the near future.*

There is an ironical contrasting statistic. Although there is much evidence for a sufficiency or even an excess of surgeons, it is also a growing specialty. It may be that the high incomes of surgeons attract an excess of recruits to this field despite the lack of evidence of the need for more surgeons. Clearly, physician distribution by specialty does not adjust itself to society's needs.

We can conclude this discussion of distribution by specialty by saying that the increasingly severe shortage of family physicians is probably the country's single most important manpower problem.

There are other types of physician maldistribution, and to illustrate these, I should like to turn to some New England statistics (9). In Table VI, in which is shown the distribution of primary and other physicians by metropolitan and non-metropolitan places, there is evidence of a substantial difference in physician supply by area.

The great concentration of superspecialists in the central cities of metropolitan areas is expected. No one would wish to change this, I believe. Specialists similarly treat or should treat selected patients and therefore require larger populations to support their practices. Their concentration in metropolitan places and to a lesser degree in larger non-metropolitan places is appropriate. Specialist services are needed much less frequently than those of family physicians, so some patient travel to see a specialist is probably the most economical solution. The almost two-fold difference in the supply of family physicians in smaller non-metropolitan areas and in the core cities of large metropolitan areas is without question a real maldistribution. It is worth noting that physicians are not located mainly in the suburbs, contrary to general opinion.

The distribution of New England physicians shows that only when population reaches approximately 15,000 do all places have at least one doctor. The distribution of primary physicians obviously determines whether there is a physician available for much of the population. For example, half of the places with populations of 1600 have a primary physician. This will no doubt shift as general practitioners retire or die, with an increase in undoctored places.

Several years ago when Dr. Fahs and I examined the distribution of physicians in the upper Midwest, we found that in the smaller places the mean age of the physi-

* This estimate is based on Table IV which showed that less than one-third of all practicing physicians under age 50 are in primary care.

cians increased as places became smaller. Doctors practicing in places of less than 1,000 population had a high mean age when compared with all physicians, reflecting in all probability a distribution that was established 20 to 40 years ago. You cannot keep Willy on the farm, and there is no expectation that doctors can be kept in small towns close to farms (5).

There are other factors that are reducing the kind of physician availability that seems to have made medical care such an important issue. The proportion of physicians in salaried positions—which are often accompanied by fewer or no patient responsibilities—is increasing rapidly. Salaried positions include those in administration, teaching, research, and industrial and insurance positions. Virtually all of these are attracting increasing numbers of physicians.

Discussion and Conclusion

Although the U.S. has more physicians in relation to population than most of the Western European democracies with which we would normally compare ourselves, we seem to have greater public dissatisfaction with our medical care. This fact, by itself, suggests that a further increase in the supply of physicians would not alleviate consumer dissatisfaction which is related to physician distribution by specialty or by area. Before we can make a case for a significant expansion of physician manpower, we must answer the question "More physicians for what?"

The present examples of the growing surgical specialties and declining recruits for the field of primary care does not encourage one to believe that anything significant can be done about manpower or services with present tools. We obviously have no effective mechanisms for directing young physicians into specialties where they are most badly needed. If there were some control over training places or the number of positions in various specialties, it would be easy enough to produce a better distribution. This is how most countries control their physician manpower.

Before leaving this point, the training of clinical assistants must be mentioned. Most countries of the world have a well developed midwifery system—a prototype of an eminently successful clinical assistant, which we could safely copy to assure continuous antenatal care in many areas that already suffer physician shortages. One must be guarded in the discussion of other types of clinical assistants. Although present discussions suggest massive movement toward greater use of clinical assistants, relatively little has yet been done (10). It would be wise to proceed cautiously before embarking upon broad and ambitious programs. While we are trying to rush into this field, the Russians who have had long experience with Feldschers, or assistant physicians, are trying to get rid of them.

Because there is a shortage of primary physicians, it is difficult to get access to medical care, a problem which impinges in a very direct manner on the population, and is, I believe, at the base of much public unhappiness. I would like to speculate about what the effect of this may be. To illustrate the possible effects, I would like to again use experiences of other countries. England, for one, embarked on a program of national health insurance in 1911. This insurance was broadened in coverage and benefits over the years up to 1948, when it was replaced by a national health service. A rather similar process has occurred in other European countries. Generally, a period of 30 years, more or less, has elapsed between the institution of some governmentally supported insurance program and its consolidation into a health service.

We, in the U.S., have been about half a century or more behind European countries in providing health insurance through government programs. The passage of the Medicare legislation in 1965 officially committed the government to support of medical care insurance only for the aged, but in fact set

in motion a process which will carry it much further. The spate of bills presently before Congress proves this, if proof is needed. Because the U.S. was so late in the development of governmentally supported health insurance, it seems quite possible that we will telescope the many small progressive changes of the typical European development into a much shorter time. Our current manpower problems and specifically the increasing shortage of primary care, may be one decisive reason for change. The other is, of course, the soaring costs of medical care. A National Health Service would provide mechanisms by which manpower distribution could be regulated to meet the needs and wishes of the Nation. Our manpower problem may be the agent for change, and this is what makes it so very important.

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Insurance and Medicine—The Changing Scene[1]

By EDMUND L. ZALINSKI, PH.D.[2]

I am more than ordinarily pleased by your invitation to be here today. The relationship between the College and the Insurance Company of North America has been a close one over the years. Mr. John Diemand, our retired chairman, was active in College affairs. We are proud of our participation in your insurance programs and at being chosen as the carrier for the College's pension plan. On a more personal note, my mother's first cousin, Dr. George de Schweinitz, was at one time president of this College.

I am flattered to have been chosen as the first speaker of your newly constituted Section on Insurance Medicine, and I wish you outstanding success in your endeavors. More than that, I believe that this new section can be very helpful to insurance companies as well as to the doctors who constitute the section.

Perhaps because of my work I tend to think of insurance and medicine being closely related. As President of INA Life, I also serve as a Vice President and Director of INA Corporation, a general business corporation of which INA Life is one subsidiary. Among our other subsidiaries are services directly connected with health care in the United States.

I thought you might get a better perspective of the wide range of services INA Corporation is involved in—as well as a better understanding of the climate in which I work—through a short film presentation I brought with me today. It will take only about ten minutes of our time, and I think you'll find it enlightening.

One or two points: You'll notice we said that one of our goals is the *continued* growth of our life insurance business. I might point out to you, as an aside, that our track record in this area is pretty good already. INA Life has been in business for just 13 years and was started with two dozen daffodils from John Diemand's farm and an empty desk and now we've climbed in that short period of time into the top 25 out of 1200 stock life insurance companies in the nation. By the end of this year, our Life Company revenues alone will be in excess of $190 million and the assets of our Life Company will be $300 million.

We have, as Dr. Samuel Moore indicated, almost $5 billion of life insurance currently in force, and those of you who are among our stockholders will be happy to know that this past year INA Life contributed $5 million after taxes to our corporate profit.

The film spoke of our strong financial position in facing the decade ahead. Considering the changes and opportunities that are likely to come down the pike in the next ten years—and, even longer—it's a good position to be in.

By the turn of the century, we are going to see radical changes in the life insurance business simply because there are going to be radical changes in our way of life. For example, our company is already in the mutual fund and the variable annuity business as well as all other phases of life, health and employee benefits. We have developed an increasing whole life policy to combat inflation and are gearing our operations to take advantage of widespread changes which are taking place in the methods of distributing life insurance products. We may even see a variable life insurance pol-

[1] Read before the Section on Insurance Medicine, The College of Physicians of Philadelphia, 5 May 1971.

[2] President, Life Insurance Company of North America, Philadelphia, Pennsylvania 19101.

icy with an equity base within the next few years.

Those of you who have been reading the newspapers are well aware of the problems in the automobile and health insurance businesses and know that strong action must be taken to counter the spiraling cost of our products which result from inflation. You are also aware of the rise in crime, in pollution and other problems of our inner cities and, closer to home, those of you who are doctors know about the increase in malpractice suits.

My crystal ball is probably not very accurate, but there are many other changes on the horizon which will affect both insurance and the medical profession. For example, it is entirely possible that in the fairly near future parents will be able not only to control the size of their families but also to select the sex of their children. Today about 47% of all married women have jobs, and the number of working mothers will probably increase. This is already giving rise to pre-school training programs like Playcare, which is sponsored by INA's AID, which was mentioned in the film, where children are cared for by groups for a fee and to the extent possible in the traditions, religious and moral backgrounds their parents espouse. In the future, both women and minority groups will attain greater social status and economic importance through education and better acceptance. The time may even come when the white male loses some of the predominant position he now occupies in our economic, social and political life. There will probably be more women doctors, although I doubt we will challenge Russia, where I am told 90% of the doctors are women.

In terms of finance, insurance companies, as they strive to improve the return on their shareholders' investment, are rapidly becoming financial conglomerates. I think we can pretty much count on inflation continuing to be with us, so as our expenses increase we'll have to find ways to improve our productivity which, in the long run, will lead to greater automation. Both computer capabilities and software facilities are improving rapidly. We may even ultimately see a cashless and checkless society.

Corporate goals in the future will probably be even further extended beyond profits *per se* and will include definite contributions and usefulness to society. We are already spending a lot of our time working with the government on environment problems in Philadelphia, on a state level, and on a national level. Unfortunately, the control of government over business and over our lives will continue to accelerate and make necessary a closer partnership between business and government if our present way of life is to survive.

In terms of health and medicine, there will be dramatic changes too. There are those who think that by the year 2000 life expectancy could be increased by as much as 25 years through further breakthroughs in cancer and heart disease. The human parts bank that will undoubtedly come into existence raises interesting legal questions concerning life and death in a life insurance policy sense. All these things at least give promise that more individuals will be living to the end of the human life span—whatever that may be—with a consequent general reduction in both mortality and morbidity which will have an important effect upon the price of life insurance and the profitability of the industry.

As for the immediate future of life insurance and medicine, let me backtrack a moment and talk about doctors *per se*. They are—*you* are—after all, among INA Life's most valued customers, and we pride ourselves on our ability to respond to your special needs including malpractice insurance, retirement programs and many other forms of insurance coverage. Group practice, professional corporations and clinics and the upgrading of paramedical personnel will require changes in the services we are offering

to you, and we are already taking steps in those directions.

Even more fundamentally, our ability to *write* life insurance at all has been enormously dependent upon you gentlemen and your profession.

On an individual basis, for example, we rely upon your professional skill and judgment to help us make our decision as to the kind and amount of personal insurance risk we can afford to take.

And when we look at the studies of the medical profession as a whole it is easy to see what great value they have been to the life insurance industry in helping us establish actuarial forecasts.

Simply put, much of the progress that life insurance has made in recent years is clearly in medicine's debt.

For a long while—some 25 years—about 150 life insurance companies in the United States and Canada were working together through the Life Insurance Medical Research Fund to help repay that debt on a collective basis. That made the life insurance industry the first industry-wide group to support medical research.

In those years, through the fund, the life insurance industry contributed well over $26 million to some 540 different research projects. Many of them were "seed" projects that gave a really invaluable impetus to medical research.

The emphasis has now changed somewhat, and many companies have started initiating their own company-supported research projects, particularly in the area of developing new techniques to deliver health care services to the public, because *that* is clearly where the big changes are going to occur in the conduct of both medicine *and* insurance.

It has always struck me that one of the most interesting facets of this whole health care problem we face in America today is the way it developed *not* out of the failure or neglect of medicine in this country, but out of its fantastic successes. The trouble is that in the last quarter century American medicine has made such extraordinary advances that it has far outstripped our national capacity to organize it and use it efficiently.

Hardly anyone, you'll notice, talks about the science—or art—of medicine as being bad in this country. The product is fine. The demand for it is overwhelming. The problem is how people in your profession and mine are going to package and distribute it efficiently, economically and profitably.

And make no mistake about it, it is *our* problem. Both our professions have a big stake in it, and if we do not actively influence its solution, the conduct of medicine and insurance in this country may both wind up as one more regulatory bureau of the Federal government.

A major aspect of the problem is, of course, financial—and in this day and age that can hardly surprise anyone. But *even* in this day and age health care costs have risen so out of proportion to other costs that they have made a shambles out of most health insurance plans.

For example, in the last two years for which the information is available, health care costs rose *twice* as much as the average for all other consumer expenses. Hospital care uses up more than 35% of all total health care funds, and as high as daily rates are, they still fall far behind actual costs, which the Comptroller at the Hospital of the University of Pennsylvania estimates to be $210 for bed and ancillary services.

Physicians' services account for 20% of our total health care bill, but while doctors' fees are rising, consumer expenditures in this area decreased recently because of Medicare and Medicaid picking up an increasing part of the bill.

The organizational problems in medicine are just as horrendous. Not only is there a shortage of manpower in medicine that's passing from chronic to acute, but our distribution of health personnel in low income

areas and rural communities is so thin it simply accentuates the problem. While I don't want to dwell on hospitals, I might just point out here that there are great improvements that can be made in hospital administration's applying business techniques and business know-how to many of the health care problems. This is the business that AID is in. It has both medical campuses, which involve both ambulatory sub-acute and acute facilities and we just took over as an example, the Queen of Angels Hospital out in Los Angeles, which is a large Catholic hospital. We're going to administer that and run it because the Catholic Church (and incidentally, we had to get permission for this from Rome) is convinced that we can run it more efficiently and more effectively than they can. Perhaps this is a break-through and an indication of where business techniques and know-how can be focused on this hospital problem. All of you know there is tremendous duplication in the hospital areas where every hospital that wants to be respectable has to have its own cobalt machine and there is a tremendous duplication of services because of this. And so we need better utilization and more efficiency in hospitals.

If the difficulties we're talking about pertained to a luxury, we could all sit around and have a nice academic discussion about them. But the speed with which America's health care problem has picked up a sense of urgency, gentlemen, is one of its most dramatic aspects. Remember, not very long ago all of us sitting in this room would have thought the idea of a national health insurance scheme completely out of keeping with our social and governmental system—and we probably would have damned it out of hand.

Now we are no longer discussing *whether* we should have one, but what kind it should be. It is clear that this issue, as we draw closer to election year, is going to become the proverbial political football, so it is all the more important for us to formulate our own views so that we may help to influence the end result of whatever plan finally does ensue.

Health insurance continues to be a problem for the insurance industry as well as the nation, primarily because health care costs have been increasing several times faster than other costs, and with continued inflation will probably remain on an upward spiral. At INA, we have ceased writing hospital and surgical business and have withdrawn from many risks in the major medical area, while increasing premiums sharply on those we have retained. As a result, our Individual Health business for the first quarter shows a small profit compared with a quarter million dollar loss last year. On the Group side, our Health premiums have purposely been kept very modest compared with many of our competitors who have large volumes of health business on their books. This explains in part the reason that we had our most profitable year in Group Insurance in 1970 when many other companies suffered adverse underwriting results.

Politicians have seized upon the upward surge in health and medical costs as an opportunity to recommend a national health insurance program. However, this will not solve the problem of escalating health care costs unless accompanied by major improvements in both the health care delivery system and preventive medicine.

At least five comprehensive national health insurance plans have been proposed, and it appears likely that some form of national health insurance program will be enacted within the near future. Both the Nixon program and that proposed by the Health Insurance Association of America provide for the care of indigent by the government, the sharing of costs between employers and employees, the development of a greater supply of health care facilities where they are needed, and for the utilization of private health insurance facilities. I might pause to say that 87% of people in

the United States have some form of private health insurance, which is not a bad job for private industry to have accomplished over the years. With the growing sophistication and cost of medical services, and the increasing degree and frequency of their utilization, great care must be used to control the cost of any program which is ultimately adopted or it may well exceed what either the nation or the public can afford.

The adoption of a national health insurance program may establish minimum, basic health care standards and benefits, leaving the field of supplementary and excess coverages open to private insurers. Our participation in the health insurance field will continue to be limited, with emphasis on the sale of hospital indemnity and short term disability policies which pay a fixed dollar benefit, and thus are less subject to the ravages of inflation.

I do not personally have a comprehensive national health insurance scheme to present to you this afternoon. What I would like to review with you are some changes in our approach to medical services which we at INA Life would like to see come about as *part* of any large scale reorganization of American health delivery system.

First of all, we are quite convinced that the expanded use of paramedical services is going to be absolutely essential in this country, simply to meet the laws of supply and demand in medicine.

For example, even with the increased fees for life insurance examinations, very few physicians are interested in them. In their private practice many M.D.s are employing all kinds of time-saving devices like tape recorders and automated lab procedures just to keep up with the work load they already have. The last thing they're looking to do is insurance examinations.

And the fact is that in many cases they're not needed to do them. A paramedic could often fill in here in their place. This would be especially true when we're talking about younger applicants—let's say, under 40—and where the amounts of life insurance are not unduly large.

Basically, the paramedical screening can be accomplished by a trained interrogator asking the medical history questions the same way a licensed physician would complete the "Questions to the Medical Examiner." The medical questions can be followed by a brief physical examination encompassing a few easily recorded parameters: height, weight, blood pressure and pulse rate. A simplified form of urinalysis, an EKG, a chest X-ray, some easily recorded measurements relating to respiration, plus some blood chemistry tests done on an autoanalyzer could also be included.

Last summer a questionnaire concerning paramedical exams was forwarded to the life underwriting departments of 300 of the largest life insurance companies in the United States and Canada. It dealt with interest, use, limitations, and future plans for paramedical programs. Over two-thirds of the companies replied, and 54% of them said they use paramedical exams already and another 39% plan to use them in the near future.

Does this mean the physician will no longer be used by life insurance companies for physicals? Definitely not. We'll always need the well-qualified M.D. to help us solve some of our underwriting problems. What it does mean is that insurance companies will be conserving the doctor's talent and use it only where it is the most needed.

And frankly, we see no reason why an extension of that concept cannot be used across the board in other areas of American medicine, at least until our supply of physicians catches up with the demand for them. Dr. Sidney Garfield, who originated the Kaiser Plan, believes that at least 50% of the time of general practitioners, internists and pediatricians could be saved with large segments of his system paramedically staffed.

This whole question of using paramedics, of course, is a development of the manpower crisis in medicine in general, both in

terms of the efficient use of doctors, as well as in terms of producing new ones.

On April 20, Health, Education and Welfare Secretary Elliot Richardson testified before the Congressional Public Health and Environment Subcommittee on the need for Federal aid for health manpower development.

His statement sets forth a proposal for capitation grants for schools of medicine, osteopathy, and dentistry under which the schools would be paid $6,000 per graduate in Federal grant assistance. Other forms of special Federal assistance would also be continued for these schools as well as for schools of optometry, pharmacy, podiatry, and veterinary medicine.

Health maintenance organizations and health professions student-aid efforts would receive additional economic support under this proposal, as would consolidated construction assistance authority programs. Expanded and improved programs for nursing services would be supported through a variety of recruiting, training, and financial aid programs.

Secretary Richardson also expressed support for legislation to create a National Health Manpower Commission to study and report recommendations with respect to health care delivery, allied health manpower and Federal health assistance and research programs.

Our personal view at INA Life is that one of the most important steps that can be taken to improve the delivery of health care in this country is to more closely align the supply of doctors with the demand for them.

Frankly, we think medical schools can be more efficiently used and that Federal subsidies are in order to greatly expand the number of physicians being graduated from them each year.

By the same token, and without sounding like an active member of the Women's Lib, I think it's safe to say that medical schools should be throwing open their doors to more qualified women, even if it means devising a semester scheduling in tune with their needs as mothers. Medical school thinking and planning along these lines—along many lines—is often antiquated, and is just now beginning to be revised.

Manpower alone, however, is not the answer to our health care problems. Granted that there are too many dollars chasing too few health facilities, an increase in these alone is not going to change things.

The big change in medicine and insurance is likely to come through our mutual approach toward preventive medicine. By that I mean better housing, better nutrition, better living habits, and quite a bit of research is needed in this area. One of the reasons that we have over-utilization is that there is not enough emphasis on health care.

We know already that hospital costs account for a major portion of our huge health bill—about 35% of it—and there is no denying that health insurance plans of insurance companies are in part responsible for it. Many insurance contracts provide coverage only if the insured is hospitalized. So you can pretty much count on the fact that he will be, whether he really needs to be or not.

So it is clear that policies are going to have to be redesigned to pay for sub-acute and ambulatory care. And an incentive will be needed to get patients to leave the hospital rather than to stay there as long as possible.

One private industry plan which seems to accomplish this by gaining the physician's support is the Health Maintenance Organization, of which the Kaiser Plan is probably the most famous.

Commonly referred to as HMOs, these prepaid forms of medical practice guarantee to their members the actual provision, not merely the financing, of a wide range of hospital and physician services. In exchange for guaranteed care the members make fixed monthly payments to their HMO.

Under this system there is no incentive to provide not really needed services, or to prolong hospitalization unnecessarily. If HMOs give too little care, they must eventually meet expensive remedial costs. If unnecessary hospitalization is provided, they end up absorbing the additional costs themselves, i.e., it comes out of the physicians' shared profits at the end of the year. Hence, HMOs tend to reward efficiency—or let's say they use the same human motivation to promote efficiency that in our current system promotes excessiveness. HMOs give doctors and hospitals alike a financial incentive to keep their patients well. In a nutshell, unlike the conventional fee-for-service system, where doctors and hospitals are rewarded for all care—needed or not—HMO staff members have positive economic incentives to make wise decisions about the difficult trade-off between too much and too little care.

The Health Maintenance Organization is not necessarily a panacea that will cure all our ills, but the fact is that, unlike many other plans that have been proposed, this one has the much needed benefit of creating internal incentives to control costs. All in all, there is a lot of evidence which says this is going to be one aspect of the changing scene we should both keep an eye on.

Another is going to be the creation of Federal minimum standards in the health insurance field. These could be beneficial in protecting the public from firms unable to meet the standards of the Health Insurance Association of America, and who are likely to issue policies that have a low ratio of benefits to premiums. But if, in addition to setting standards, the government also sets prices, it is quite possible private carriers will find themselves in an untenable price bind, and unable to participate as fully as they would like.

These are the changes I think we'll all be seeing in a few short years. But we may not see them take the form we would like unless we personally exert our influence on the people in whose hands the ultimate decisions rest.

I know we at INA Life will be working hard to achieve the kind of changes that will bring about a just and efficient health care plan for this country. And I am sure you will be working for this goal, too.

May I conclude these remarks by saying that I believe the future of the life insurance business is bright. The 25 to 35 age group which buys the most life insurance is growing three and one half times as fast as the general population, due primarily to the increase in the birth rate which followed immediately after World War II. By the end of 1976, it is predicted that family income will increase from $9,000 to $15,000 and that life insurance ownership by family will grow from $19,000 to over $32,000. As a result of these developments, the United States Chamber of Commerce predicts that life insurance in force will almost double in the next five years, going from about 1.4 trillion at the end of 1970 to in excess of 2.5 trillion by the end of 1976. We at INA are projecting a comparable increase in our life insurance business.

Let me conclude by saying that it is a great pleasure to be with you and to have this opportunity to help you initiate the Section on Insurance Medicine.

Historical Relationships between Tissue Culture and Transplantation Experiments[1]

By JANE M. OPPENHEIMER, PH.D.[2]

It is a great honor for me to have been invited to give the Kate Hurd Mead Lecture, and I am grateful for it both to the Medical College of Pennsylvania and the Section on Medical History of The College of Physicians. Doctor Mead was a member of the Class of 1888 at what was then the Women's Medical College of Pennsylvania; the Class of 1897 at Bryn Mawr College has endowed the Chair that I hold at Bryn Mawr. Members of the Class of 1888 might have known a very little of what I am going to talk about here. An important paper that described a combination of *in vitro* and *in vivo* techniques for the study of individual cells was published in 1887 by Julius Arnold (1). Members of the Class of 1897 might have known a lot about the beginning work most relevant to my topic of the evening, the relationships of explantation and transplantation experiments as they developed historically. A key paper was published by Gustav Born in December 1896 (2). My title is already too long, but it should have included the phrase *embryonic* explantation and transplantation experiments, which is really what I wish to discuss. But some of the work leading up to it was performed on adults—such as that of Arnold just referred to—and I will come at the end to the aspect of the work that probably most interests any clinicians who are here tonight—the relationships of the work of 1887 and 1896 to what is being done in the hospitals and medical research laboratories of today. Some of the correlations are positive and some negative; a subtitle for my lecture might have been "Continuities and Discontinuities in History," since general problems are raised that have worried me more and more the more I am involved with tracing the history of ideas.

I am sure that members of the Classes of 1888 and 1897, and of all the classes that you represent, liked to hear neatly organized lectures, and that you might appreciate having what I am about to say arranged chronologically, but that, in this case, would imply continuities that do not exist. What I wish to do, therefore, is to begin with some work reported in 1896 and 1897, then to go back to some of its origins and non-origins, and later forward to its sequels and non-sequels. This work of 1896 and 1897 dealt with embryonic transplantation; it may have been more important, I believe, than is often remembered for the development of modern tissue culture techniques. Body fluids, prime tissue culture media—and some of their ingredients are still added today to the best of artificial media—are body fluids whether inside the body or outside of it.

The paper published by Born in 1896 dealt primarily with experiments in which halves of amphibian larvae, cut cross-wise, were fused. Fusions might be between two heads, or between two trunks, in normal dorso-ventral orientation, or between one larva's head and another's trunk, and in any of these combinations one component might be reversed dorso-ventrally through 180°, i.e., the dorsal aspect of one component might be fused to the ventral of the other. Some fusions were ventral-to-ventral parabioses. Interspecific and interordinal combinations were made also.

[1] Kate Hurd Mead Lecture XXII, The College of Physicians of Philadelphia, 27 April 1971.

[2] Class of 1897 Professor of Biology, Bryn Mawr College, Bryn Mawr, Pennsylvania 19010.

Combinations between two species of frogs survived seven days; combinations between frogs and newts, in Born's experiments, survived as long as three weeks. Born described a great number of experiments and the paper concludes with a long theoretical disquisition not necessary to enter into here in detail. Among the results, as interesting as any to us today, are those which Born emphasized as demonstrating the joining of like to like; that is, if two anterior halves were joined, even with ventral aspect of one to dorsal aspect of the other, a pronephric duct of one joined that of the other, the alimentary canal of one became fused with that of the other, a condition which would have entailed both some work and some choices on the parts of the cells of the structures involved.

The immediate sequel of these experiments we shall come to very soon. But what led up to them? Sheer accident. This was stated in a preliminary paper by Born, in which he described the origin of the experiments (3). He had transected some young amphibian larvae in order to examine the regenerative capacities of their anterior versus their posterior halves, and he left a number of the halves clustered together in a single dish, a practice that would horrify any embryologist of the 1970's. Nonetheless, a good thing it proved to be, because when he returned the next morning he was astounded to find that a number of the halves, in some cases posterior to posterior, in others anterior to anterior, had fused together at their cut surfaces. The secret of the success of these experiments was a simple one, namely that the larval halves were placed in a favorable salt solution, what Born called physiological sodium chloride solution, and this permitted fusion of the parts.

Born died too soon to continue his experiments further, but they were immediately taken up by Ross Granville Harrison, who is our central protagonist of this evening. He read Born's article, and immediately began, in 1897, to perform variations on Born's experiments, and he published in 1898 a study on the growth and regeneration of the tail of frog larvae studied by the aid of Born's method of grafting (4). He studied a number of aspects of the development of his larval combinations, not all to be specified here, but among them was the mode of distribution of cutaneous nerves. Born had been able to bring to metamorphosis larvae combining head and trunk-plus-tail of two individuals of a single species; Harrison carried through to metamorphosis a chimera combining a head of one species of frog with a body of another. Harrison said, in 1898, that it died at the age of four months and twenty days. It had been "kept in a terrarium in which it had access to a pool of water. Its instincts were apparently normal, and it would spring about catching small flies and other insects, which were supplied in abundance.... It died suddenly, death being probably due to overfeeding" (5). One speculates now about the diagnosis.

It would be asking too much if we expected either Born or Harrison at the end of the last century to interpret results of grafting failures in para-immunological terms, but in fact, Born came not too far from it. At almost the very end of his long 1896 paper he reported the results of some abortive and unsuccessful attempts at skin transplants from toad to frog larvae. He grafted small flat skin patches into wounds of corresponding size: "Even when this seemed at first successful, the foreign part, recognizable by its color, became continually smaller and more difficult to see within the course of a few days, and finally was no more to be seen at all. But these experiments were not very numerous, and also they were carried out only by the bye, and not much attention was devoted to them. They are, however, not hard to carry out, and could provide very useful results for the problem of 'vegetative af-

finity' " (6). In quoting the phrase "vegetative affinity" he was referring to what he had mentioned on the previous page concerning Oskar Hertwig, who had in 1894 (7) attempted to explain the fact that grafts between organisms of close relationships were more successful than between more distantly related organisms; Hertwig was thinking in part of grafting experiments on plants and on *Hydra,* but he also referred to nineteenth century grafting of mammalian tissues. Hertwig contrasted such vegetative affinity with the "sexual affinity" he thought to be responsible for the specificity of fertilization. Perhaps even more important than that Hertwig postulated these so-called affinities was the fact that he referred the properties of both explicitly to fundamental, though unspecified, characteristics of the cells.

Since we concern ourselves with continuities and discontinuities, we might digress for a moment to emphasize that Born knew the contemporary work on transplantation in mammals, as he makes clear by showing us that he read Hertwig's monograph. But in addition, he referred in 1896 to two important papers by Zahn (8), published in 1878 and 1884 respectively, on attempts to graft fetal mammalian cartilage; the latter of these referred, in its turn, to various reviews written on mammalian transplantation in the 1880's. We know from Born's own account that his first amphibian fusions were the result of a laboratory accident. Was he prepared, in part, to make the most of them, because of what he had already read?

To return to the work of Harrison, he published another great paper on embryonic grafts in 1903 (9), and it is commonly accepted that the 1896 paper by Born and the 1898 and 1903 articles by Harrison initiated the practice of embryonic transplantation which was so to illuminate the epigenetic character of vertebrate development, and to lead to the concept of embryonic induction which won Hans Spemann a Nobel Prize in 1935. Spemann sometimes combined gastrula halves in atypical orientation, but his most critical experiments involved the grafting of small portions of embryos. It is not commonly known, or at least not frequently publicly emphasized, that Born had explicitly stated in his 1896 paper that small grafts might be made for the solution of particular problems. I am referring here not to his own unsuccessful skin grafts already described, but to his postulate, expressed earlier in the paper, that if small grafts were implanted in atypical orientation, the results might demonstrate whether their polarity in its relations to the host's polarity might affect the quality of their healing. I do not know whether all members of our local audience know that the first successful grafts of small portions of embryos were first made in 1903 (10), on the frog, by Warren H. Lewis, then working in the Anatomy Laboratory of the Johns Hopkins Medical School, but later to become such an endearing member of the Philadelphia scene.

Before raising the question as to whether the embryonic transplantation experiments influenced the beginnings of present-day clinical transplantations, I should like to return for a moment to the beginnings of tissue culture, also initiated by Ross Harrison. His work was the effective beginning of tissue culture as we know it today.

This was a contribution begun in 1905 and first described by Harrison in 1907 (11); this work too was performed in the Anatomy Laboratory of the Johns Hopkins Medical School, where Harrison was then a colleague of Lewis. The experiment was beautifully simple, as most crucial experiments are. In the early 1900's the manner of origin of the axone was still disputed. Harrison had long been interested in problems related to nerve outgrowth, as we mentioned earlier this evening, and as has been described in detail elsewhere (12). To

test the hypothesis that the axone is a product of the neuroblast itself, Harrison explanted a portion of the medulla of a frog larva, at a stage before any axones had formed, into clotted lymph in a hanging drop, and he observed microscopically the outgrowth of the fibers from the individual neuroblasts during the course of their production. It was tissue culture in that tissue cells were explanted in a group; it was close to cell culture in that the results were interpreted in terms of the activities of individual cells.

I have described this work as the effective beginning of tissue culture. A number of efforts in this direction less consequential had been made earlier, some of which are worthy of mention, particularly in the context in which we are considering events this evening, namely in terms of the relationship of *in vivo* and *in vitro* transfers. Arnold, whom we have referred to above, in 1887 placed slices of pith into the dorsal lymph sacs or the peritoneal cavity of frogs (hardly grafts, but *in vivo* experiments), he allowed leucocytes to invade them, and then removed the pith and permitted the leucocytes to abandon it to wander out into warm aqueous humor where they survived for several days. In 1898, Ljunggren (13) placed human skin *in vitro* in ascitic fluid, then regrafted it, a true combination of explantation and transplantation. Leo Loeb (14), the same year, combined explantation and transplantation experiments in attempts, like Born's and Harrison's earlier grafting experiments, to study regeneration. He described how transplanted mammalian epithelium could grow and migrate into blood clots and coagulated lymph although separated from neighboring cellular tissues. He reported later that as a result of these experiments he thought "that it should be possible to cultivate tissues on solid culture media in the test-tube as well as within the body" (15), but his own attempts to perform these experiments between 1897 and 1902 (16) were not successful. More propitious than those of Loeb were the results of Jolly (17) who in 1903 reported having cultured salamander leucocytes in serum, and of Beebe and Ewing who cultivated a canine lymphosarcoma in blood, as they described in 1906 (18).

On the face of the evidence I have found, this work seemed not to have been an outgrowth of attempts made far earlier by embryologists to maintain embryonic cells apart from the whole embryo. Again the material was provided by the eggs and embryos of our friend the frog. The first investigator ever to describe the developing embryo and its germ layers in terms of cells was Robert Remak, who in 1855 devoted a long monograph to this subject (19). Already in that monograph he described the membrane activities of cleavage cells of the frog isolated in sugar solution, and Stricker, in 1864, studied changes of cell shape and the division of frog blastomeres isolated in water (20). Wilhelm Roux, who believed himself a pioneer in experimental embryology, and who in fact published in 1895 and 1896 two contributions (21) involving amphibian embryonic cell isolations that led fairly directly to the cell dissociations being carried out in so many laboratories today, may not have been as original as he considered himself.

In the 1860s, also, mammalian blood, including human, began to be studied outside the body. The conformation and movements of the constituent cells of the blood were then of interest; perhaps the most notable observations were those by Max Schultze, who in 1865 devised an excellent and ingenious warm stage for his microscope (22). These early experiments on blood outside the body were physiological: Schultze's, for instance, were designed to test the effect of raising the temperature on movements of the white corpuscles. Whether or not such attempts should be defined as tissue culture in our

modern sense is moot; they did enable investigators to observe *in vitro* cells removed from the body. The first serious attempts to accomplish true cell culture in synthetic media were those of a botanist, Haberlandt, in 1902, described in a magnificent piece of work more often referred to than read; an excellently presented English translation (23) is newly available in a current scientific journal that is found on the shelves of most modern biology libraries today.

It was not the custom in 1907 for microscopic anatomists to present full sets of references to all the work performed by their predecessors, and Harrison's 1907 papers describing the outgrowth of the nerve fiber included no references. He published two fuller papers on this work in 1910. In one (24) he mentioned Loeb briefly; Born's 1896 paper was referred to, but only in connection with wound healing. In the other paper of 1910 (25) he made no mention of the attempts of others to grow tissues in altered surroundings. In a lecture on the status and significance of tissue culture delivered in 1927 (26) he praised Haberlandt for being the first pioneer in the area of true cell culture. He referred also to Loeb's efforts, although discussion of some of the latter's work was relegated to a footnote.

When between 1855, when we know that serious attempts to study isolated cells were begun, and 1905, when Harrison performed his first experiments, Harrison learned of the earlier work, we do not know. We do know for an absolute fact, however, that he had read carefully one important article that had led to his transplantation experiments, the 1896 article by Born. At the very end of his long paper on transplantation, Born reported that he had tried unsuccessfully in 1894 to cultivate fragments of amphibian larvae in the dorsal lymph sac of the frog.

"Already two years ago," wrote Born on the last page of his 1896 article, "I transferred smaller and larger pieces of blastulae, gastrulae, and older larvae into the dorsal lymph sac of frogs of the same or of different species. If such fragments could be maintained in physiological salt solution for days [here he was presumably referring to Roux's experiments which he had discussed earlier in the article], is it not possible that they would survive and develop further in lymph, which would perhaps be more favorable in its composition? ... That fragments of blastulae and gastrulae can continue their development outside the body in salt solution diluted with lymph was easy to determine" (27). He then reported briefly the results of the experiments in which he had placed the implants into the lymph sacs. After he left such fragments for weeks or months, he found only small amounts of detritus where the grafts had been placed. Postulating that their destruction might have resulted from movements of the frog, he repeated the experiments using curarized hosts, and this time the fragments of blastulae and gastrulae were transferred into the lymph sacs along with a considerable amount of salt solution. He allowed these hosts to survive for several months before being sacrificed, then found in the dorsal lymph sacs flat structures, about 6 to 8 mm in diameter, resembling collapsed vesicles with pigmented walls. They were sometimes completely free, but some were penetrated by nerves; histological examination showed them to be cysts of connective tissue surrounding yolky remains of the implants. Born felt, however, that these investigations could be carried further.

Did Born's suggestions as to the virtues of lymph as a possible medium in which to study the development of isolated embryonic fragments influence, consciously or subconsciously, Harrison's choice of this medium? The published record does not so state, but one is permitted to wonder. "The first attempt which I made to study

the development of isolated bits of embryonic nervous tissue gave entirely negative results," wrote Harrison in 1910. "The tissue was dissected out from the embryo and put either into physiological salt or Locke's solution, but no differentiation was observed, before disintegration began. Later a more natural environment for the isolated tissue was sought in the ventricles of the brain and in the pharynx of young embryos.... These experiments likewise resulted negatively.... The next step was to try a fixed medium. Two such were employed, one of which, gelatine, gave no results at all.... The other, clotted frog's lymph, gave the results that are here recorded. It was rather to be expected that this medium would yield positive results, if indeed such were to be obtained at all, for it would be chemically the most natural medium, and the fine net-work of fibrin threads, bathed by the fluid medium, would in a measure simulate mechanically the protoplasmic net-work, which, according to [some], seems to exist in the tissue spaces in which the peripheral nerves undergo their early development" (28).

I believe that it is generally accepted by every one that Harrison's explantation experiments demonstrating the outgrowth of the nerve fiber began the fashion for studying tissues and cells *in vitro,* and it is not necessary to document here the continuity between his work and that which is being done today.

Whether the transplantation experiments begun by Born and immediately followed up by Harrison on amphibian embryos, and continued by experimental embryologists working on a variety of animals and problems, had a similar influence on those who are grafting human hearts and kidneys today—or who will transplant lungs and other organs tomorrow—is a question with a different answer. Transplantation of adult tissues in vertebrates, including mammals, has a long and honorable history that I shall not enter into here. But it is no doubt safe to say that the present-day work on mammalian transplantation, related as it is to immunological problems, is intimately related to the contributions made by Sir Peter B. Medawar to the understanding of acquired immunological tolerance. Medawar, I need hardly tell this audience, shared a Nobel Prize with Sir F. MacFarlane Burnet in 1960 for discoveries in this field.

Medawar gave an extraordinarily clear and detailed account, in his Nobel Prize Lecture (29), of the events and ideas leading up to his work in acquired immunological tolerance. He became interested, in the 1940's, in the behavior of experimental skin grafts; as a result of that interest he had "been goaded by H. P. Donald into trying to devise a foolproof method of distinguishing monozygotic from dizygotic twins, an enterprise that seemed reasonable enough against the rather thorough background of knowledge we already possessed about the behavior of skin grafts in experimental animals" (30). At about the time that Medawar was beginning his work on skin grafts, Owen (31) reported that non-identical twins in cattle, such as freemartins and their normal male co-twins, have identical erythrocyte antigens; here the transplantations had been done by Mother Nature, since freemartins are genetic females that are co-twins of brothers; the placentae of the twins fuse, and the allantoic blood vessels anastomose, before the time of onset of circulation in either member of the pair. Medawar was most specific in stating, in his Nobel Prize Lecture, that he "had not set out with the idea of studying the immunological consequences of the phenomena described by Owen.... It was F. M. Burnet and F. Fenner.... who first read a general significance into Owen's discovery and who wove it into a general hypothesis of the immunological response which counted the phenomenon of tolerance among its theoretical consequences" (32).

There is no reason to believe that Medawar knew of the resorption of Born's toad skin grafts implanted onto frog hosts. He did know, of course, about the embryological work, *in vivo* and *in vitro,* that had elucidated the embryological origin of skin pigment cells from the neural crest, also first initiated by Harrison and carried out and continued with great skill by his students and by others (33). But it is eminently clear that this was not in his mind as a motivating factor when he grafted skin from twin to twin to find out whether they were monozygotic or dizygotic. Here is an example, then, of how one thing did not lead to another.

The frightening thing about this state of affairs is that had one read the early work of Born, then that of the investigators of pigment cell origin from the neural crest, then Owen's report, and finally various articles by Medawar, but not the Nobel Prize Lecture, one might well have suspected that a sequence of events took place that we know did not. The occupation of intellectual historians is tracing the patterns not of mere chains, but of three-dimensional webs of ideas, and I believe that some of the perils they face are exemplified from the considerations I have presented to you this evening. In any event, however, the non-continuities do not detract from the significance of the contributions made by Born and Harrison to progress in embryonic grafting, nor from the debt we owe to Harrison for our progress in tissue culture, and it is my strong belief—though this may be stretching the web too far—that at the end of the nineteenth and the beginning of the twentieth centuries there was a close interrelationship between the development of explantation and at least embryonic transplantation techniques.

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Philosophical Direction of Medical Thinking from Mather to Snow[1]

By CHRISTOPHER J. KEATS, A.B.[2]

John Snow was a successful thirty-five-year-old London anesthesiologist when he turned in 1848 to the study of the epidemic disease of cholera. At the time of Snow's work, no one knew whether cholera, with its symptoms and signs of rice-water stools, vomit, and prostration, and its often rapidly fatal course, was caused by a microorganism or some chemical poison; it was possible that cholera was contagious, like the plague, or measles, and it was equally possible that some miasma, or bad air, or some epidemic constitution of cosmic origin was responsible for producing cholera in certain areas at certain times. What Dr. Snow did was to analyze rationally what he saw, in such a way as to draw useful conclusions about the nature of cholera and its mode of communication.

There is no question that cholera existed long before 1848, and many men as perceptive as Snow must have tried to understand the disease. But just as Gen. George Patton found himself with precisely the right tools at precisely the right moment in history to sweep with his tanks across Europe, so Dr. John Snow found that, given the philosophies of the mid-nineteenth century, his tools, in the form of contemporary medical knowledge, could be used successfully in an epidemiological survey.

Approximately one hundred years earlier, Snow would have found both medical knowledge and the philosophical climate inappropriate to the task. The Rev. Cotton Mather, who lived from 1663 to 1728, was perhaps as well informed as any physician of his day, and he was a minister, so that his story, briefly told, serves to introduce a study of then-current attitudes. During Mather's life, people "were shifting from a teleologic to a naturalistic outlook. Moreover, this growing interest in science as such was inherent in the Puritan philosophy. Max Weber has called attention to the dynamic role which Christianity played in the development of medieval and modern science, and to the especially effective service of Calvinism—of 'the Protestant Ethic'—in this connection (1)."

In reading as a precocious youth the medical texts at the Harvard College Library, Mather probably learned as much medicine as students in Europe, whose medical education likewise consisted chiefly of reading. But his religious background presented strongly in a sermon he delivered in Boston in 1712 on the occasion of "the Raging of a Mortal Sickness in the Colony of Connecticut and the Many Deaths of Our Brethren There" in which he insisted that "Sin has been the Needle; Death has been the Thread," and stated as a specific example that "In Excessive Eating, Men Dig their own Graves with their Teeth (2)." In all fairnesss to his Connecticut brethren, Mather warned Bostonians, "... our Thanksgivings [for good health] are to be quickened by what we see befalling others, that are not Greater Sinners than ourselves (3)." In all fairness to Cotton Mather and the Protestant Ethic, it must be said that Mather gave full sup-

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port to Zabdiel Boylston's efforts at smallpox inoculation in Boston in 1721, against the militant opposition of the "Society of Physicians Anti Inoculator", a group which Mather thought was inspired by the Devil (4).

Also by Mather's time had come "the revival [from ancient Greek thought] of the concept of disease specificity. From Galen's time until about 1550, nearly all medieval men had thought of different patterns of illness as merely variations in 'the general state of the system' . . . During the Renaissance, however, a few medical thinkers—notably Paracelsus—revived a second Greek tradition, that is, that there were distinct diseases, each with its own causes and cures. . . . Only when this basic taxonomy of medicine had been worked out could the aid of the physical sciences be effectively employed (5)."

Clearly, without a concept of the separate identities of diseases, even a man capable of good research would be unlikely to look for specific causes of disease, and thus would be unlikely to find them, except by accident. And even if he suspected diseases were separate entities, the epidemiologist of 1750 would be burdened with a set of prejudices from which he could not easily escape. The physician of those times "recognized five primary factors as governing the presence of epidemic disease, as follows:

1. (If he were a reasonably devout believer), the desire of God to punish and warn his erring children.

2. The influence of climate and season.

3. A mysterious epidemic constitution of the atmosphere characteristic of a given year (often associated with the influence of the planets and various abnormal natural phenomena).

4. A harmful influence on the constitution of the atmosphere of a particular locality, due to organic decomposition.

5. Contagion (particularly in diseases such as influenza, measles and smallpox in which case-to-case transfer was obvious and inescapable) (6)."

Given this set of postulates, it is easy to see why Noah Webster, who was interested in epidemiology as well as in philology, could have been decoyed into investigation of the epidemic constitution (7). His two volume work, *A Brief History of Epidemic and Pestilential Diseases,* published in 1799, contains " 'a year-by-year summary of epidemics and phenomena in the external world which precede, attend, or follow them, from the Mosaic writings down to 1799,' " and a " 'tabulation from 1650 down of yearly weather conditions, astronomical events, and, volcanic eruptions in comparison with records from Bills of Mortality in various cities.' " Noah Webster is remembered, of course, as the author of a dictionary; it is reasonable to assume that a man with his energy, talent, and interests might have been equally memorable as a medical scientist had his hypotheses not directed his research into such barren, if intriguing, areas.

Ever since 1546, when Fracastorius' work (8) led to "the first really philosophical statement of the contagionistic theory of disease," there has been ideological battles between those who favored contagion as the chief cause of epidemic disease and those who favored the old Hippocratic notion of the epidemic constitution. Most physicians, even as late as 1832, "thought cholera was caused by the aerial poison—miasm—malaria—proposed by Sydenham 150 years before as the cause of epidemic disease. The view that this omnipotent, inescapable poison was wafted on the wings of the winds did not assist the physician in protecting his community. His almost universal belief that the scourge was not contagious did not aid him in controlling its spread (9)." Probably the most significant misconception was that disease had to be caused either by contagion or by "constitution", and that if it was not caused by one it must be caused by the other.

Thus, since "Great epidemics, as distinguished from ordinary endemic prevalence of disease, could not and cannot be accounted for solely by infection (even as we understand it today) or by infection combined with local environmental factors (10)," that ruled out contagion, and a dearth of other possibilities suggested themselves. Today, in trying to explain why plague should have struck one year, and influenza another, "We assume, on theoretical grounds, a change in virulence or a symbiotic action of two germs. Hippocrates and Sydenham assumed an epidemic constitution of the atmosphere. In 1800 their view was still the more plausible (11)."

Fortunately, or unfortunately, it did not much matter what view the physician adopted, since "the average person of the street was not as firmly convinced as physicians were, that individuals with smallpox, cholera, and yellow fever were not dangerous to others. Thus the regulations of the lay boards of health of the period do concern themselves with isolation of the sick during epidemic periods, as well as with removal of dead animals and location of cemeteries (12)." In any event, at least in the United States, epidemics were not due to "false epidemiological theories of physicians, nor lack of understanding of causal factors in illness. Rather, the epidemics were due, in great part, to social and economic factors that dominated the lives of all the people (13)." This point is easy to document, and, in the instance of cholera, we read that the disease "was an extraordinarily lurid sample of the perils that ordinarily menaced the health of tenement dwellers.... It was never difficult to predict where, in a city, cholera would first appear. Cholera ... flourished where the ground was low, where garbage was never collected, [and] where there was no adequate ventillation (14)." Thus it is possible to say that "the most important factor of the whole century in reduction of illness and death was an awakening of a social consciousness in the nation (15)."

Social consciousness, as well as a new kind of rationalism, were characteristic of the early nineteenth century, and perhaps the new philosophies were best expressed by Jeremy Bentham, who lived from 1748 to 1832. Bentham (16) coined the terms "maximize" and "minimize" and used them: "The Maximum of the Aggregate of Happiness—by this test I will try evil and good; this shall be my standard, this my guide [in reforming the prevailing institutions and laws] (17)." Bentham would have understood our present-day business concept of minimizing losses; his mathematical approach to life led him to the conclusion that "the greatest happiness may [in some cases] be promoted by ... the infliction of pain; that the felicitarian principle may require ... the renouncement of happiness—the renouncement of a small, for the sake of a large amount of happiness ... (18)."

Bentham's rationalism and his efforts at reform affected physicians of his day both in England and in the United States. Benjamin Rush, "undoubtedly the leading physician of his time on this side of the Atlantic, ... a pioneer in developing humane and scientific treatment of the insane," was a "blood-brother ... to Bentham.... He campaigned for penal reform and against slavery and the use of alcohol and tobacco (19)."

Not only did physicians find inspiration in Bentham, but Bentham extended his utilitarian philosophy to the field of medicine. He believed that the study of anatomy was important, and, flaunting contemporary ethics and laws, he willed his body to be dissected. In the lecture which he delivered over Bentham's remains, Dr. Southwood Smith, who had been Bentham's friend, observed the following: "That the disposal of his body [in this manner] ... would give pain to some for whom he entertained a sincere affection,

he knew; but he also knew that the amount of pain thus produced would be overbalanced by the good likely to result from such an example (20)." In fact, the "Anatomy Bill" which removed "the main difficulties which obstruct[ed] the study of anatomy" was passed shortly after Bentham's death in 1832 (21); it is interesting to note that dissection of human cadavers was first legally permitted in the United States in Massachusetts in 1831 (22).

As an indication of just how far Bentham was willing to go in defiance of religious or moralistic sensitivities about the sanctity of the human body after death, we have evidence that Bentham apparently provided that his dressed skeleton and embalmed head be maintained in a display case at University College, London, so that students at the College might dine with the remains on special anniversary occasions (23).

Benjamin Rush and Southwood Smith, friends of Jeremy Bentham, had a different, more secular, more rational approach to medicine than Cotton Mather had a century earlier, and it was into this rationalist era that John Snow was born in 1813. Without discrediting his work, one can yet acknowledge that an empirical epidemiological investigation such as the one Snow undertook in 1848 would have appeared reasonable to his contemporaries, and the results were likely to have been accepted if they could be shown to be useful. Yet Snow's contribution was fresh, and must have been considered avant-garde by those physicians who met at the Sanitary Conference in Paris in 1851 and concluded that:

"1. Epidemics are always the results of cosmic conditions.

2. Isolated, e.g., individual, ill persons attacked by contagious diseases, virulent or miasmatic, are absolutely unable to produce epidemics.

3. Even epidemic diseases of essential contagious character are never spread through transmission, e.g., from person to person.

4. The essential, the specific, in epidemics is produced by a certain 'state of affairs', unknown meteorological conditions, invisible and unfathomable (24)."

In his studies, Snow made full use of advances that had been made in chemistry, noting that "the analyses of Dr. O'Shaughnessy and others during the cholera of 1831–32, show that the amount of water in the blood was very much diminished in proportion to the solid constituents, and that the salts of the blood were also diminished . . . The amount of water in the blood of healthy persons is on the average 785 parts in 1000; whereas, in the average of the analyses performed by Drs. Garrod and Parkes [on cholera patients], it was only 733 parts, while the amount of solid constituents of the blood, relatively to the water, was increased from 215—the healthy standard—to 267 . . . The saline constituents in 1000 parts of blood are somewhat increased, on account of the great diminution of water; but, when estimated in relation to the other solid ingredients, or to the whole quantity existing in the healthy body, the amount is diminished. Dr. Garrod is of the opinion that a chemical analysis will determine whether or not a specimen of blood has been derived from a cholera patient (25)."

Snow found that the amount of fluid lost by the cholera patient was approximately equal to that in the patient's stools and vomit, and he reasoned that the loss of fluid from the alimentary canal explained the blood changes which in turn caused the signs of shock, shortness of breath, and renal failure. Furthermore, Snow observed that "If any further proof were wanting . . . that all the symptoms attending cholera, except those connected with the alimentary canal, depend simply on the physical alteration of the blood, and not on any cholera poison circulating in the system, it would only be necessary

to allude to the effects of a weak saline solution injected into the veins at the stage of collapse [which temporarily returned the patient to health] (26)."

Medical knowledge, then, was sufficient to supply a surprisingly sophisticated description of the physiological changes, or the pathology, of cholera; yet there was no conception at that time of either arthropod transmission of disease or of transmission by healthy carriers (27), and it was not until 1884 that Robert Koch finally named the comma-bacillus as the cause of cholera (28). Thus Snow's work had to be based largely on speculation, but his speculation was firmly grounded in the "nineteenth century Filth Theory of Disease," which was "a relatively precise and scientific form of the old doctrine of miasms. It was backed up by statistical and epidemiological evidence; and it actually accomplished results in the practical control of epidemic disease (29)." Snow's bias, then, was probably that accurate observation bolstered by statistical support could lead to correct conclusions. Having perceived that "cholera invariably commences with the affection of the alimentary canal (30)," Snow reasoned that "the morbid material produced cholera must be introduced into the alimentary canal.... It would seem that the cholera poison, when reproduced in sufficient quantity, acts as an irritant on the surface of the stomach and intestines, or, what is still more probable, it withdraws fluid from the blood circulating in the capillaries.... For the morbid matter of cholera [to have] the property of reproducing its own kind, [it] must necessarily have some sort of structure, most likely that of a cell (31)."

Snow's observations finally led him to suspect that cholera was spread in polluted drinking water. He argued that if it had no such means of transmission, "it would be constrained to confine itself chiefly to the crowded dwellings of the poor, and would be continually liable to die out accidentally in a place, for want of opportunity to reach fresh victims (32)." Obviously, cholera did spread widely; and it became clear through Snow's studies that cholera victims lived in areas near suspect public water pumps, or in areas chiefly supplied by a single water purveyor.

Snow's best known study concerned an outbreak of cholera near Golden Square in London in 1854. Surmising that the water supply might be the source of infection, Snow drew on a map the location of homes of those stricken by cholera, and found that the pump on Broad Street was in the center of the area of highest incidence of disease. At Snow's suggestion, the distraught vestrymen of the district removed the handle of the Broad Street pump and the numbers of fatal attacks declined immediately (33).

Thus, as Dr. Wade H. Frost said in his introduction to Snow's papers, "... Snow perceived the thread of consistency which connected a seemingly chaotic mass of facts and followed it through to the conclusion that bacteriology has since confirmed (34)."

From this brief review of epidemiologic history from Mather to Snow, there seems to be evidence that medical thinking was directed along lines determined by a contemporary bias; that certain prejudices existed about what methods of problem solving or what areas of research might be rewarding, and that these prejudices were themselves derived from contemporary philosophy. Other, more recent trends in medicine suggest that this conclusion is valid. For example, Norman O. Brown, in *Life Against Death,* remarks that "the unpremeditated affinity between Freud and Nietzsche is well known; and Freud himself acknowledged that the poets had anticipated him in the discovery of the unconscious (35)."

Because of our proximity to the problem, it is difficult to perceive in what direction philosophy is leading our research today. That there is continuing interaction

between the arts and sciences there can be no doubt, as evidenced by the following comment on some of medicine's latest work (36):

Organ Transplant
By J. D. Reed

I drank
my arteries filled with fat;
the ventricles went lax
and a clot stopped my heart.

Now I sit
in St. Petersburg sunshine.
No whiskey;
wearing a girl's heart.
My blood has adopted a child
who shuffles through my chest
carrying a doll.

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13. *Ibid.*, p. 62.
14. Rosenberg, Charles E.: *The Cholera Years*. Chicago, 1962, pp. 144–145.
15. Winslow *et al.*, *op. cit.*, p. 71.
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17. Smith, Southwood: *A Lecture Delivered over the Remains of Jeremy Bentham*. London, 1832, p. 19.
18. *Ibid.*, p. 30.
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20. Smith, *op. cit.*, p. 64.
21. *Ibid.*, p. 74.
22. Winslow *et al.*, *op. cit.*, p. 20.
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24. Winslow *et al.*, *op. cit.*, p. 54.
25. Snow, John: *Snow on Cholera*. New York, 1936, pp. 11–12.
26. *Ibid.*, p. 15.
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28. Chambers, *op. cit.*, p. 348.
29. Winslow, *op. cit.*, p. 236.
30. Snow, *op. cit.*, p. 10.
31. *Ibid.*, p. 15.
32. *Ibid.*, p. 22.
33. *Ibid.*, p. 49.
34. *Ibid.*, p. xiv.
35. Brown, Norman O.: *Life Against Death*. New York, 1959, p. xiv.
36. Reed, J. D.: "Organ Transplant", in *The New Yorker*, New York, Sept. 26, 1970, p. 126.

Memoir of William T. Branen 1906–1970*

By JOHN B. MONTGOMERY, M.D.

William T. Branen, a Fellow of The College of Physicians of Philadelphia since 1942, died on March 7, 1970, following a brief illness due to a dissecting aneurysm of the aorta.

Born in Lewistown, Pa., July 14, 1906, he received his preliminary education in the public schools and was admitted to Swarthmore College where he was graduated (A.B.) with honors. Following a year as teacher of mathematics and physics in Nether Providence High School, he decided on a career in medicine and entered The School of Medicine of the University of Pennsylvania. He received his M.D. degree in 1933.

After serving one year as an intern in the then Methodist Episcopal Hospital of Philadelphia, Doctor Branen was appointed Chief Resident Physician. He served in this capacity for two years, 1934–36. It was during those years that he became interested in obstetrics and gynecology, largely due to the influence of Dr. John C. Hirst, III. Early in his career he came under the influence also of the late Dr. George W. Outerbridge, and later became closely associated with Dr. Leonard Hamblock, both of whom were well-known chiefs of obstetrics and gynecology at the Methodist Hospital.

Dr. Branen's professional life was devoted to the practice and teaching of obstetrics and gynecology and to the Methodist Hospital. He served this fine institution well as chairman of many important committees and finally as president of the hospital staff, and as director of the Department of Obstetrics and Gynecology. He carried on effectively the resident training program and the teaching affiliation with Jefferson Medical College, where he held the position of Associate in Clinical Obstetrics and Gynecology.

Doctor Branen was affiliated also with the Jefferson Medical College Hospital and The Delaware County Memorial Hospital, where he held the title of Associate Obstetrician and Gynecologist.

Doctor Branen was an active member of the local and State Medical Society and the A. M. A., as well as The College of Physicians of Philadelphia, The Obstetrical Society of Philadelphia, The American College of Surgeons, and the American College of Obstetricians and Gynecologists.

He became a diplomate of The American Board of Obstetrics and Gynecology in 1948.

In 1929, Dr. Branen married Rosalie Ellett, who died in 1947. They have one daughter, Joan (Mrs. William Rawles). In 1950, Doctor Branen married Helen Auchmuty, who also survives him.

Beyond his professional activities, Dr. Branen had a wide variety of interests and hobbies. He was once an enthusiastic photographer. He enjoyed golf and was a member of the Aronomink Golf Club. He was a member of the Skytop Club and the Union League of Philadelphia. He had a real interest in organic gardening, and he loved to listen to fine recorded music. He was also an amateur ornithologist. This interest led to his collection of fine bird sculptures.

In all of his activities Bill Branen was devoted to excellence. An idealist, a perfectionist, a fine gentleman, he sought always for the best in life.

* Prepared and published at the request of the Council of The College of Physicians of Philadelphia.

Memoir of Chalmers E. Cornelius 1902–1970*

By THOMAS A. JOHNSON, M.D.

Chalmers E. Cornelius, a Fellow of The College of Physicians of Philadelphia, died on November 25, 1970, at Abington Memorial Hospital in Abington, Pennsylvania, where he had been physician-in-chief of the Otolaryngological Service until illness forced his retirement from practice in 1964.

Born in Moorsville, North Carolina, in 1902, he became the head of his family when only ten years of age, following the death of his father. At age 14, he matriculated in a military academy in North Carolina. From 1920–24, he was a student at the University of North Carolina at Chapel Hill, later transferring to the University of Pennsylvania, where he received his M.D. degree in 1926. He completed his internship at the Graduate Hospital in Philadelphia in 1927. From 1927–35, Dr. Cornelius was a medical officer for the Eastern State Penitentiary.

Early in his career, Dr. Cornelius cultivated an active interest in a number of medical fields. The writer recalls particularly his work in the Gastroenterologic Clinic of Dr. H. L. Bockus at the Presbyterian Hospital in Philadelphia in the late 1920's and early 1930's. Ultimately his interest focused on otolaryngology. In 1935 he opened an office for private practice in Jenkintown, Pennsylvania. He attained the rank of Associate Professor of Otolaryngology in the Graduate School of Medicine of the University of Pennsylvania.

Dr. Cornelius served his country in the U.S. Navy from 1942–45 with the rank of Commander. Following World War II, Dr. Cornelius returned to the private practice of Otolaryngology in Jenkintown.

In his later years, Dr. Cornelius suffered from a particularly disabling basal cell cancer of the nose which required extensive surgery and ultimately spread throughout the body. He bore his painful affliction with an incredible stoicism.

He was a member of the Philadelphia Laryngological Society, the Huntington Valley Country Club, the American Medical Association and its constituent units in Pennsylvania.

Surviving are his wife, the former Elizabeth Oelberman; two daughters, Mrs. Christopher M. Turman and Miss Carol E.; a son, Chalmers E. Cornelius, 3rd, M.D.; a sister, Mrs. B. C. Thompson, and two grandchildren.

Following retirement from the practice of medicine, Ed enjoyed intensive daily rounds of golf on the course at the Huntington Valley Country Club. Ed played a superior game of bridge. For many years, he was a member of the Abington Hospital team of the Interhospital Bridge Whist League, where he won many trophies including top score in 1951.

Ed will be remembered for his devoted attachment to his family and warm concern for the welfare of his patients and friends.

* Prepared and published at the request of the Council of The College of Physicians of Philadelphia.

Memoir of Clifford Bailey Farr 1872–1970*

By KENNETH E. APPEL, M.D., AND ROBERT E. JONES, M.D.

By the time of his death on February 24, 1970, at the age of 97, Dr. Clifford Bailey Farr had attained the distinction of being the oldest Fellow of The College of Physicians in both years of life and years of membership. He was proposed for membership in the College by Dr. S. Weir Mitchell in 1903 and was therefore a Fellow for 67 years. The reason I was asked to read this memoir is that Dr. Farr, as the oldest member, proposed my name in 1963, and I became the newest and youngest Fellow of the College. The privilege of reading the memoir would have been accorded to Dr. Kenneth E. Appel, a close friend of Dr. Farr for 44 years, had it not been for Dr. Appel's recent illness, and I am happy to say that Dr. Appel was able to join me in preparing this memorial.

Dr. Farr's lineage stretches back to Kenelm Winslow, who emigrated from England to Massachusetts in 1629 and became surveyor of the town of Plymouth. His brother, Edward Winslow, became the third governor of the Plymouth Colony. In the 18th Century, descendants of this pioneer migrated to Maine and settled a region surrounding Lake Cobbosseecontee near Augusta. The Farr family has continued to vacation on an island in this lake for over a hundred years. Dr. Farr's parents, Lincoln Dow Farr and Hannah Bailey, moved to New Jersey, where his father developed a successful oil cloth and linoleum business and became president of Cooper Hospital in Camden. Dr. Farr was born in Vineland, New Jersey, on April 17, 1872.

In 1885, because of frail health, he was taken abroad by his mother and entered in a school in Paris which he disliked heartily. Consequently he was permitted to withdraw from school and to travel for a year with his older brother's best friend, the famous Quaker, Rufus Jones. Dr. Farr used to give amusing accounts of his trip to European capitals by steamer and stage coach.

Dr. Farr prepared at the William Penn Charter School from 1886–90 and was graduated with honor. He received his B.A. degree from Haverford College in 1894 and subsequently received an M.A. degree. He was editor of "The Haverfordian." His closest college friend was William Wistar Comfort, who became president of Haverford College. After graduating from the Medical Department of the University of Pennsylvania in the Class of 1898, he became Resident Physician at the Methodist and Episcopal Hospitals in Philadelphia. He studied German at Göttingen in the summer of 1896, took up work in the Pepper Laboratory, 1901–02, and also worked with Dr. Folin in physiological chemistry at Harvard in the summer of 1912, In 1892 and 1896 he traveled in Europe and through Canada in 1901.

Dr. Farr held the position of Pathologist to the Methodist Hospital and subsequently to the Presbyterian Hospital. He served as Visiting Physician at the St. Michael's and Baptist Homes, at the Methodist Hospital and at the Polyclinic Hospital, at the Philadelphia Hospital for Contagious Diseases and at the Philadelphia General Hospital. He was a Dispensary Physician at

* Read before The College of Physicians of Philadelphia, 3 March 1970. Prepared and published at the request of the Council of The College of Physicians of Philadelphia.

the Hospital of the University of Pennsylvania. At the Graduate Department of the University of Pennsylvania, he served as an Instructor in Physical Diagnosis, an Associate in Medicine and finally as Professor of Gastroenterology.

During this period, Dr. Farr studied the biochemistry of digestion and published a series of papers with Dr. Joseph Sailer, a prominent internist. With Dr. Edward B. Krumbhaar, he studied the relationship of urea to the total nitrogen of the blood in hepatic disease. Another close friend during this period was Dr. David Riesman. Dr. Farr wrote *Internal Medicine for Nurses,* published in five editions, and contributed to Jacob Da Costa's *Syndrome* and to Frank A. Craig's *Diseases of Middle Life.*

During World War I, he served from 1917–19 as First Lieutenant, Captain and Major with the Presbyterian Hospital Unit in France. While attached to the Chemical Warfare Service, Experimental Field at Chaumont, he began a lasting friendship with Dr. A. Newton Richards.

For two years, 1920–22, Dr. Farr served as a Consulting Physician in the Department of Diagnosis and Research of the B. F. Goodrich Company in Akron, Ohio, a pioneering effort in the development of industrial medicine.

In 1922, Dr. Earl D. Bond, superintendent of the Department for Nervous and Mental Diseases of Pennsylvania Hospital, invited Dr. Farr to become Director of Laboratories and Research. In this post, Dr. Farr became concerned with the physiology and biochemistry of mental patients. He studied gastric function, basal metabolism and bodily structure of mental patients. With Dr. Kenneth E. Appel, he studied the relationship of blood sugar, insulin, undernutrition, and acid-base equilibrium to the psychoses. With Dr. Lauren H. Smith, he studied the importance of hereditary factors in the psychoses. His attempts to correlate physiological changes with mental illness stimulated the thinking of the next generation of American psychiatrists, including Drs. Appel, Smith, and Francis J. Braceland.

Dr. Appel recalls that Dr. Farr was a meticulous scientist in regard to his laboratory work, but at the same time he was always to be seen talking to patients and doctors on the hospital floors in order to correlate his laboratory findings with clinical pictures. He was extremely well informed about the literature of general medicine as well as psychiatry and consequently he was able to stimulate the thinking of younger men to developing fields in both. Dr. Farr participated to a small extent in private psychiatric practice and clinic work, but because of deafness turned more and more to laboratory work. "Because of the presence of an internist in a mental hospital," Dr. Appel says, "one felt there was a solid base of medicine built into the hospital through him."

Dr. Appel recalls an incident in the 1920's when the two men were investigating the relationship of undernutrition to psychosis and inadvertently put a patient into insulin shock. When the glucose fell to 15 mg%, the two doctors became apprehensive about possible danger to the patient. In writing about their studies, they warned others about the dangers of insulin coma. However, the patient recovered and went home. "Because of the stringency of our conceptualization, because of the rigidity and limits of conventional thinking," Dr. Appel says, "we saw only the dangers and not the benefits of insulin coma and failed to anticipate the discoveries of Sakel in Vienna a number of years later."

"But Dr. Farr was eager to experiment and extend the boundaries of knowledge," Dr. Appel says. "We experimented with both insulin and electroshock to observe whether there was any danger to nerve cells in the brains of cats. Similarly, we found that there was no danger to intravenous use of sodium amytal to render the

cat unconscious before E.S.T. and thus discovered that sodium amytal could be used to overcome the apprehension, anxiety and fears of patients before they were given electric stimulation. These experiments preceded the use of succinylcholine. Thus, Dr. Farr's laboratories were always active in experimenting and trying new things, as well as occupied with the usual clinical laboratory work."

In 1929, Dr. Farr traveled again to Europe, this time accompanied by the young Dr. Appel. Their purpose was to visit continental clinics and hospitals to study the latest developments in European psychiatry in order to gather ideas for a new unit at Pennsylvania Hospital. Dr. Appel recalls with great pleasure the leisure and the scholarly companionship of his older colleague. Dr. Farr, he says, delightfully exemplified the joys and satisfactions of cultural interests and pursuits. "My youthful temperament needed refinement," Dr. Appel says, and the trip with Dr. Farr provided it as the two of them visited Frankfort, Heidelberg, Bern, Berlin, Munich and Zurich. The pair was stimulated most by E. G. Von Kleist of Frankfort, who was attempting to reach out for new ideas in the etiology of schizophrenia by seeking for defects in the parietal lobe, by Professor Eugen Bleuler and his staff on the "hallowed ground" of the Burgholzli Hospital, who were using narcosis treatment for schizophrenia, and by Professor Hans W. Maier of Zurich, who was trying to treat murderers and return them to society. The two men returned to Philadelphia with different concepts of psychopathology and with new ideas for psychiatric treatment. They realized that Pennsylvania Hospital's idea for a new unit—an open hospital for the treatment of neurosis—would be a new development in world psychiatry; nowhere in Europe did such a center exist. The new unit, The Institute of the Pennsylvania Hospital, opened in 1930. Dr. Farr's teamwork with Dr. Bond and Dr. Edward A. Strecker gave a special atmosphere to this division of the Hospital, which became a training ground for many distinguished American psychiatrists. Dr. Farr's medical experience and emphasis contributed an essential aspect to psychiatric training at Pennsylvania Hospital.

In addition to his medical knowledge, Dr. Farr's greatest achievement was the respect and affection of generations of Philadelphia physicians. He had a host of friends. His wife says that his friends were the most important thing in his life. They included many great men of The College of Physicians: Jacob Da Costa, Chevalier Jackson, John B. Deaver, George Morris Piersol. Dr. Appel says that Dr. Farr was first and foremost a gentleman, "A gentleman is one you can disagree with without his being disagreeable." "Manners and consideration for others," Disraeli said, "are the two chief characteristics of a gentleman." Dr. Appel describes him as "gentle, refined, reserved, friendly, literary, a scholar, a scientist, a humanitarian. He was one of the best informed and best read men I ever knew in general literature, medicine and psychiatry. He had high standards and a spry sense of humor."

In 1963, at the age of 90, this kindly gentleman and his wife visited me in London. This year the 91-year-old Mrs. Farr (Katharine Elliott, of Philadelphia) to whom Dr. Farr was married in 1904, will visit their daughter in England, the Lady Foot, wife of Lord Foot of Buckland Monachorum, Devon. Dr. Farr is survived also by three sons, Robert L., of Washington, D. C., F. W. Elliott, former Senior Vice President of the Girard Trust Bank, and James B., of Towanda, Pennsylvania, and by seven grandchildren and three great-grandchildren. He was a member of the American Medical Association, American Gastro-Enterological Society, Pathological Society, A. M. P. O. Fraternity, Phil-

adelphia Psychiatric Society, Pediatric Society, and the Philadelphia County Medical Society.

After retirement from active practice, Dr. Farr organized the Historical Library and Psychiatric Museum at The Institute of the Pennsylvania Hospital, cataloguing early documents and letters, especially the collection of 5,000 letters to Dr. Thomas S. Kirkbride, the Hospital's 19th-Century superintendent. For the 100th anniversary of the American Psychiatric Association in 1944, Dr. Farr wrote a definitive paper on Benjamin Rush. During his later years, he devoted himself to the study and teaching of medical history. He will be remembered at Pennsylvania Hospital by the Clifford B. Farr Reading Room, which will be dedicated this year in honor of this refined and scholarly physician and gentleman.

Memoir of Bernard Pierre Widmann 1890–1971*

By HENRY L. BOCKUS, M.D.

Bernard Pierre Widmann was born July 21, 1890, in Johnstown, Pennsylvania, the eighth child of thirteen children of John and Magdelena Graf Widmann. His mother was of Swiss and his father of German extraction. He died at the Graduate Hospital in Philadelphia, February 26, 1971. His premedical education was obtained at St. Vincent's College at Latrobe, Pennsylvania. His medical degree was conferred by the Medico-Chirurgical College in 1916. He served his internship in the Hospital of the Medico-Chirurgical College, 1916–17.

Barney was married to Mary Eileen Maher of Trenton, New Jersey, in 1919, and they had two daughters, Mary Eileen and Ann Stevens. There are five grandchildren. Unfortunately, his charming wife departed this life in 1935. Barney never remarried. His homelife subsequently was spent with his sister, Florence, who survives him, and his two daughters until they married.

Barney served as First Lieutenant in the Medical Corps of the Army during World War I (1917–18). He was assigned to the Army x-ray school at Camp Greenleaf, initiating his interest in radiology. He was Consultant in Radiology at the Philadelphia Naval Hospital during World War II.

Barney was fortunate to have begun his career in radiology under the guidance of that eminent American pioneer in radiology, Dr. George E. Pfahler. He served full time as Dr. Pfahler's office and hospital assistant for ten years. This indoctrination included not only diagnostic radiology but radiotherapy. This unexcelled preceptorship was the foundation for the brilliant career that followed. Dr. Pfahler was reputed to be not only the pioneer but the leading authority on radiotherapy in America. Dr. Widmann gave the first Pfahler Lecture at the Philadelphia Medical Society in 1961.

Barney spent the greater part of his medical life in training physicians for careers in radiology. He became Assistant Professor of Radiology in the Graduate School of Medicine of the University of Pennsylvania in 1922 and rose to the rank of Professor in 1934. He was appointed chairman of the department (Vice Dean) in 1945, serving in that capacity until he became Professor Emeritus in 1957. Someone has said that a teacher affects eternity; he can never tell where his influence stops (*The Education of Henry Adams*). Not only was Barney a great teacher, but his research in his chosen field of radiation therapy was outstanding. Although he was not a prolific writer, approximately 100 scientific publications bear his name. Many of these were concerned with radiation in cancer therapy. His basic contributions to the treatment of skin cancer achieved world-wide recognition.

From 1928 to 1960 he was Chief of the Department of Radiology at the Philadelphia General Hospital. It was at Old Blockley that his principal talents in teaching, research and administration were exhibited. For many years he was Supervising Consultant in Radiology at the Fitzgerald Mercy Hospital (Darby) and Our Lady of Lourdes Hospital (Camden). Throughout his active life he was frequently called

* Prepared and published at the request of the Council of The College of Physicians of Philadelphia.

upon as consultant in the Philadelphia medical schools and hospitals in matters concerned with administration and selection of personnel in their departments of radiology.

The respect and admiration of his colleagues resulted in his appointment to positions of honor and responsibility in the societies of his specialty. Early in his career, the Philadelphia Roentgen Ray Society elected him President (1925). This Society of his associates in Philadelphia honored him on numerous occasions. A testimonial dinner to honor Bernard Pierre Widmann was given by the Philadelphia Roentgen Ray Society at the Union League in 1961. In 1965 an oration in his honor took place in Mitchell Hall of The College of Physicians of Philadelphia, delivered by Professor Henry S. Kaplan of Stanford University., This was followed by a testimonial dinner at the Union League.

Barney was a member of all of the national societies of radiology. He served as president of the American Roentgen Ray Society at the time of their Fiftieth Golden Anniversary meeting in St. Louis in 1950. In the same year, he was chairman of the Section of Radiology of the American Medical Association at their One Hundreth Anniversary meeting in Atlantic City.

One of the duties that he thoroughly enjoyed was his service on the American Board of Radiology. He was a trustee of this Board from 1937 to 1964, the longest term of office served by any member. Barney was Chairman of the Board from 1958 to 1960. How fortunate were many young neophytes in radiology to have had their Dr. Widmann as Board examiner! He was saddened only occasionally by having to fail an examinee. I suspect this rarely happened. When it did become necessary, Barney gave the candidate kindly advice concerning how to proceed to brush up on the areas of his weakness. He was chairman of the Residency Review Committee on Radiology of the American Medical Association, 1957–60.

Barney was the recipient of many honors and awards. He received the honorary degree LL.D. from his alma mater, St. Vincent's College, in 1933; the Doctor of Science degree was conferred upon him by Hahnemann Medical College in 1951. St. Joseph's College honored him with the D.Sc. degree in 1958 and presented him with the coveted Clarence C. Shaffrey Medal Award in 1959. He received the Strittmatter Award of the Philadelphia County Medical Society in 1964. In the same year, he was awarded the Gold Medal by the American College of Radiology for "Outstanding Service to Radiology."

A reiteration of this record of professional accomplishments leaves much to be said concerning the man, Barney Widmann. The esteem and admiration for Barney in the hearts of his colleagues and friends did not stem alone from his professional acumen and accomplishments. As a judge of the man, Widmann, aside and apart from his professional stature, I believe I can qualify as an expert; we were close friends for 57 years. I know of few professional colleagues who have had so great a life of love and so much of love for life. I know of no one who surpassed Barney in the facility for inoculating others from his vial of friendliness, kindness, humility, compassion and unselfish service to others. Was it Carlyle who said: "Oh give me the man who sings at his work"? Barney was one of these. What if he did kiss the Blarney Stone in good old Cork? Would that many of us had done likewise! One of his outstanding accomplishments, a chore that he loved, was that of toastmaster at many functions. His introductions were superb. He never failed in his kindly fashion to emphasize the virtues and accomplishments of the speakers in a delightfully pithy and humorous vein.

In spite of his aplomb and assurance on the platform, Barney was a modest person

and capable of embarrassment. In the early 1940's, with a group of friends in Nantucket, he was surrounded by a large gathering of youngsters seeking his autograph. He did bear some resemblance to the actor Ralph Morgan. One of Barney's friends jokingly addressed him as Ralph Morgan within earshot of the adolescents. At once he became surrounded by these young hero worshippers. I have never seen Barney so embarrassed.

When time permitted, he enjoyed the association of many friends in the clubs of which he was a member. These included the Union League, Philadelphia Country Club, Meigs Medical Society, Friendly Sons of St. Patrick, the Philopatrian Club, the Penn Club and the Knights of the Holy Sepulcher. Barney was a devout Catholic. His fraternities were Phi Chi and Sigma Xi.

I knew Barney during our medical school days—he at Medico Chi—I at Jefferson. Although the camaraderie between the students of these two schools was not always "sweet," Barney of Medico Chi was a most welcome visitor to our Jefferson fraternity and social functions. Often he came with his fiddle, usurping the function of the professional musicians to the delight of every one. But his popularity could not be attributed to the fiddle alone; pulchritude and personal charm added tremendously.

During our early years of practice often we would steal away from duty in the afternoon for an hour to play squash at the old Penn Athletic Club across the street. He was always a sympathetic and magnanimous victor. Our offices in the same building from 1928 on afforded opportunity for daily contacts. I learned that his office was headquarters for physicians in training. Fellows, residents and graduate students flocked there seeking advice from the master in matters both professional and personal. Our mutual patient contacts were of daily occurrence. During these 40 years, I cannot recall any derogatory comment from patients concerning their experiences in the Widmann office, but I heard innumerable remarks concerning his patience, kindness and sympathy. His advice was sought by many patients in matters unrelated to radiology because of his humane, sympathetic nature. Barney was not merely a radiologist. The designation "radiologic physician" can best describe his professional and personal attributes.

When I think of Barney's homelife, the description of the house described by Van Dyke comes to mind: "The lintel low enough to keep out pomp and pride, the threshold high enough to turn deceit aside, the door board strong enough from robbers to defend; this door will open at a touch to welcome every friend." An inscription over the portal of Barney's old hospital, the Medico-Chirurgical Hospital, was there for persons of the Widmann guild: "Think not the beautiful doings of thy soul shall perish; they will abide with thee forever."

A little known poem could have been written for Barney Widmann:

". . . . and sweetens rooms where'er he goes,
to leave a part of him to stay."

Barney has left a part of him to stay in the hearts of his friends everywhere, a legacy all of us who knew him will cherish throughout life.

Report of the Secretary for the Year Ended December 31, 1970

Stated Scientific Meetings:		*Attendance*
January	The Ninety-seventh Mary Scott Newbold Lecture George C. Cotzias, M.D.	166
February	The Ninety-eigth Mary Scott Newbold Lecture John H. Knowles, M.D.	275
March	The Ninety-ninth Mary Scott Newbold Lecture Leon H. Sullivan, D.D.	250
May	The Eleventh Benjamin Musser Lecture Seymour S. Kety, M.D.	152
November	The Twenty-ninth Alvarenga Lecture Richard Wurtman, M.D.	75
December	The Forty-ninth James M. Anders Lecture Martin Cherkasky, M.D.	172
October	Dinner Meeting held at the Franklin Institute	

Regular Business Meetings:	*Total Ballot*
January 7, 1970	304
February 4, 1970	247
March 4, 1970	257
May 13, 1970	305
November 4, 1970	234
December 2, 1970	(No ballot)

Sections of the College:	*Membership*
Ophthalmology	81
Otolaryngology	38
Public Health, Preventive and Industrial Medicine	(discontinued)
Medical History	140

MEMBERSHIP

	Fellow	Non-Res.	Honorary		Hon. Assoc.	Total
			Foreign	USA		
December 31, 1969	1,146	172	1	5	4	1,328
Died during year	27	2				29
Resigned	4					4
Elected	41					41
Transfer from resident to non-res.	−5	+5				
Transfer from non-res. to resident	+2	−2				
December 31, 1970	1,153	173	1	5	4	1,336
Life membership new type						
Under 70	10	3				
Over 70	26	7				
Old type (commutation dues)	5	0				
	—	—				
	41	10				
Dues remitted as of December 31, 1970	45	15				
Annual contributors as of December 31, 1970	1,067	148				

John L. McClenahan, M.D.
Secretary

Report of the Treasurer for the Year Ended June 30, 1970

GENERAL FUND

Income	
College general income	$205,086
Library	50,793
Medical Documentation Service	112,239
Gifts	48,512
Indirect expense allowance on grants	78,450
Total unrestricted income	495,080
Expense	
Hall committee	59,092
Library	227,007
Medical Documentation Service	138,379
College collection	8,708
Publications	13,478
Secretary—Treasurer's office	44,944
Executive Director's office	30,447
Entertainment Committee	1,381
Employee benefits	36,255
Direct expense of grants	218,145
American Philosophical Society grant	2,716
College general	20,819
Total expense	801,371
Less:	
Charges to restricted endowment income	(60,501)
Charges to Special funds	(33,163)
Reimbursement of direct expense of grants	(218,145)
General fund expense	489,562
Net income	$5,518

The audit was conducted by Main Lafrentz and Co. and complete details concerning the audit are available to the Fellows in the office of the Executive Director.

Donald M. Pillsbury, M.D.
Treasurer

Annual Report on the Library*

The College Library—1970. The increasing complexity of the College Library is reflected in the multiple authorship of its Annual Report. What was once a one-man account more than twenty years ago, graced with elegance of style and philosophical vision, has by necessity become a composite of factual accounts. A table of contents is justified to guide the unwary reader.

The College Library—1970: Elliott H. Morse, *Librarian*

Library Historical Collections: W. B. McDaniel, 2d, *Curator;* Lisabeth M. Holloway, *Associate Curator*

S. Weir Mitchell Associates: Beatrice F. Davis, *Assistant to the Librarian*

Regional Medical Library Program: Carol C. Spencer, *Director*

Resource Grant Activity: Beatrice F. Davis, *Assistant to the Librarian*

Medical Documentation Service: Alberta D. Berton, *Director*

Statistical Summary: The Staff

Institutional Benefactors: The Staff

Approval: Walter B. Shelley, M.D., *Chairman, Library Committee*

Retrospect and Prospect: A rereading of last year's report reveals a mixture of elation over the higher level of service accomplished with Regional funding and of frustration over the adjustments required to achieve the resulting gain. Hopefully, with most of the growing pains attendant upon major expansion of staff and service endured and survived, new intramural and extramural relationships have evolved into a more comfortable and adaptable structure that encourages solid accomplishment. Anticipated fiscal restrictions both within the College and at federal funding levels forecast a spartan program. Blanket grant funding of library outreach will be replaced by a mixture of contract funding for services offered and special grants for research and improvement related activities.

From the Librarian's viewpoint, the most significant accomplishment was the acceptance of the appointment to the Directorship of the Mid-Eastern Regional Library Program by Miss Carol C. Spencer.

Library Committee Function: The Library Committee prepared a statement of its responsibilities and functions at the suggestion of the President of the College. Some of the most salient portions of the new statement follow.

The College Bylaws specify that the Library Committee is an elected body that functions under the direction of the Council. The Chairman is elected by the Committee each year and he is automatically a member of Council. The Committee is charged with running the Library, which includes planning library activities and establishing Library policies. The Library Committee nominates a Librarian and Curator of the Library Historical Collections to Council each year.

The Librarian performs all his duties under the direction of the Honorary Librarian, an elected officer, who is ex-officio a member of the Library Committee and is responsible for the general superintendence of the Library under direction of the Committee.

The voting members of the Committee are the five elected members, the Honorary Librarian and the President of the College. The Executive Director and the Librarian are invited to attend all meetings.

The Librarian prepares an agenda for each meeting of the Committee. He prepares and distributes the minutes and the report of the Chairman to Council. He is responsible for the employment of all Library personnel including the Library His-

* January 1–December 31, 1970.

torical Section, the Medical Documentation Service, the Mid-Eastern Regional Medical Library Service and all other parts of the Library.

The Library Committee submits a budget proposal once a year to the Finance Committee for consideration and forwarding to Council. This budget is prepared by the Librarian in consultation with the Executive Director and Comptroller of the College. The Chairman of the Committee and the Librarian may be asked to meet with the Finance Committee when the budget is under review.

The Library Committee should review the work and recommendations of the Mid-Eastern Regional Medical Library Committee, which is appointed by the President of the College, and make full use of it in the review, guidance and evaluation of the Regional Medical Library Program. Every grant application should be carefully scrutinized by the Library Committee before it is submitted to the Council for College approval. No expenditure should be made by the Librarian outside the budget without the recommendation of the Library Committee and the approval of the Council.

An Annual Report of the Library should be drawn up every year by the Librarian and approved by the Chairman of the Library Committee in sufficient time for review by the Committee and publication with the Annual Report of the College.

Fellows as Library Users: The July–August issue of the Library's Booklist reported Fellow's use of the Library during the first eight months of the year as revealed in their redemption of the green stamps they were given for free photocopies of ten articles. For the full twelve month period this window into Fellows' library habits showed 107 different Fellows requesting copies of 491 articles from 236 different journals and 35 copies from books. The diversity of this use reveals both the strength of the collection and the scholarship of the user group.

Which Fellows: The geographical spread of the places from whence the requests came reminds us how many emigrants from the Philadelphia area have maintained an interest in the College and its Library.

Philadelphia	72	Alabama	1
nearby Pennsylvania	21	Connectiuct	1
New Jersey	5	Florida	1
Delaware	1	Michigan	1
California	2	Missouri	1

The ten institutional affiliations producing the most requests follow:

University of Pennsylvania	12
Graduate Hospital	9
Temple University	9
Hahnemann Medical College	8
Thomas Jefferson University	8
Hospital of the University of Penna.	7
Bryn Mawr Hospital	6
Albert Einstein Medical Center	5
(Woman's) Medical College of Penna.	5
Pennsylvania Hospital	3

A categorizing of the Fellow users by the decades when they joined the College shows a widespread distribution. However, without knowing the total number of Fellows in each class we cannot draw specific conclusions except to note that interest persists regardless of the length of Fellowship.

1970	3	1940's	11
1960's	43	1930's	12
1950's	34	1920's	4

Age of material used: A tabulation of the 491 articles and books by age shows the customary pattern of 60 percent of the request being filled by the last ten years.

1970	51	1920's	8
1960's	256	1910's	1
1950's	67	1900's	3
1940's	28	19th Century	12
1930's	31	books not categorized	34

The fact that 56 of the articles are in foreign languages and that 275 of the titles are specialty journals suggests that this group is a sophisticated audience. The smallness of the sample studied permits some distortion. It is also true that we do

not know how many Fellows turned to the College Library after trying elsewhere, thereby increasing the relative popularity of journals which would be less used in other libraries.

Medical Documentation Service: The regular report of this department of the Library appears near the end of this Annual Report. In review of the overall administration of the Library it is appropriate to record that the Library Committee reviewed the recommendations of the Berry Committee that this Service be integrated with the reference services funded by the College Library and the Regional Medical Library program. The Library Committee's decision to maintain the M.D.S. as a separate operating unit of the Library was influenced in part by the desire to know whether this fee-for-service department covers the expense of its operation including an adequate provision for indirect costs. The service originally inaugurated in 1954 was intended to provide access to the College Library resources by persons or institutions unable or unwilling to visit the Library for self-help. In most cases these "clients" are commercial institutions or individuals who are willing to reimburse the College Library for such personalized services.

As a matter of policy, the Service has not actively competed for short-term contracts to produce abstracting and indexing publications but has preferred to respond to solicitations for its services. In this fashion, mutually agreeable relationships were established with the Cystic Fibrosis Foundation, the National Foundation and the National Institute of Allergy and Infectious Diseases. The resulting publications have been of high quality to reflect credit to the College itself.

Cordial relationships have also developed with many pharmaceutical companies who have become contributors to the College in addition to their payment of fees for service rendered.

Since 1965 the Service has offered five hours service per year to Fellows without charge. Beginning in 1971 this assistance is formalized by the issuance of coupons to Fellows. About 50 Fellows utilized this service prior to its formalization.

There have been three major revisions in the fee schedule since 1953 with the latest one in July 1968. The Library objective has been to recover costs including an allowance for overhead. The unpredictability of demand has resulted in varying degrees of success in achieving this goal.

Over a period of fifteen years' operation, five persons have served as Director of M.D.S. Total services rendered since the start of the service include: an average of 28 subjects scanned and reported to clients; 78,272 articles reported; 2,849 bibliographies compiled. 2,132 translations prepared; 26,289 articles abstracted.

The Medical Documentation Service increases the accessibility of the College Library, makes a significant contribution to published indexes in medical bibliography, demonstrates the concern of the College to facilitate the dissemination of medical information and has pioneered in the use of data processing and text composition and manipulation techniques.

Physical Changes. The most obvious improvement in the Library's physical appearance this year was the installation of carpeting in the two main reading rooms. With the encouragement of the President of the College, Mrs. Beatrice Davis studied the feasibility of carpeting these areas. She investigated various types and colors of fabric and drew upon the experiences of other libraries. Prior to the laying of the carpet, Mr. Theodore Kolodziejski and his staff erected scaffolding and painted the walls and ceilings of these rooms and refinshed the woodwork in the Ashhurst Reading Room, revealing the original beauty of the natural grain and ornamentation which was covered with decades of grime.

Study Room No. 5 was painted, new lighting fixtures were installed, the old radiator was replaced with panel heating units and airconditioning was installed. This third floor room houses members of the Regional Program staff including the newly appointed Hospital Library Consultant.

New thermostatic controls and panel heating units were installed in the Library workroom to improve the problem of too little or not enough heat.

Security of the Library's Historical Collections was improved by installing solid shielding in the stairway between sixth and seventh floors of the new stack. The door which could be picked from the outside is now tamper proof. During the year studies were made of alternate areas within the building for housing of the historical materials. The roof over the new stack was repaired again following bucket control of several leaks.

Stack Needs. The need for additional book storage space occupies a high place on any list of priorities for the College Library. The recent history of studies of stack needs at the College is recorded here as a source document on which to plan for the future.

The Library Committee minutes of February 20, 1967, refer to the Building Committee minutes of October 13, 1949, where the Librarian noted that the original plans for the new stack, which was built in 1954, anticipated space for 25 years growth but overlooked the extreme overcrowding of the stack at the time. He suggested that 15 years would be a more reliable estimate. In 1967, seventeen years had passed since the revised estimate and the stacks were again uncomfortably full.

In 1954, the architect predicted that the stack would hold for twenty years. Unfortunately he insisted that there be three foot aisles in the new stack. This ill-advised generosity cost three years growth space, which predictably advanced the estimated capacity date to 1971. In February 1967, the Librarian suggested to the Library Committee that considerable shifting could provide effective stack space until 1972.

The 1954 plans envisioned two means of increasing stack space at the end of twenty years. The east wall of the new stack building could be moved to the Van Pelt Street building line at a cost estimated in 1954 to be $120,000. Secondly, sufficient structural strength was built into the new stack unit to permit the placement of two more floors on top of the slab roof. The original 1949 estimate was that this extension upward could be made for $250,000.

In February 1966, Mr. Allen Cornell, the builder of the 1954 addition, reported that building costs had increased 44 percent and that the extension eastward would then have cost $180,000 and that the 1949 estimate of $250,000 for two additional floors would then have cost $420,000.

The following month, March 1967, the Library Committee toured the stacks and inspected the building from the outside. The Librarian calculated that moving the east wall of the stack about 14 feet to the Van Pelt Street building line would permit the addition of four stack sections to each of the 22 ranges on each of seven floors of stack. Each of the 616 new sections thus provided would contain six three-foot shelves or 11,088 feet of shelving. Counting about seven volumes per foot, this extension would house 77,616 volumes or about 10 to 13 years growth. The addition of two more floors to the new stack structure would add 185 sections on each floor, housing about 46,620 volumes, or 6 to 8 years of growth.

Dr. Richard A. Kern presented a "Stack Recommendations" memorandum to the Library Committee on April 17, 1967, which was approved and forwarded to Council with a recommendation for its adoption. The memorandum follows:

"The Library Committee believes that the future needs and functions of the Library call for a study in depth (a) as to the nature of those needs and functions, and

(b) as to the physical plant that will be required to serve those functions.

The former (a) is the chief objective of the Task Force Proposal as planned by the Regional Medical Library Committee of this College: that proposal has the full endorsement, in principle, of the Library Committee, which recommends its adoption to Council.

The future of the physical plant (b) should now be studied with these basic facts in view:

I. The need to increase stack space in the College Building. (Our growth rate is now 7,000 volumes per year, and the remaining stack space will hold 21,000 volumes).
II. The need for storage space for old and infrequently used material in an adjoining property accessible by bridge from present work-room space. (This would further increase current stack space.)
III. The need for space, adjoining or in the College building, for the appliances used in modern and expanding library functions, such as facsimile reproduction, MEDLARS, etc.
IV. The need for parking space for library users.

These four needs call for a *coordinated study* by competent advisors (architect, engineer, librarian, others) *of our existing properties:* their suitability, adaptability, adequacy or inadequacy; and to suggest the necessary structural and/or constructional measures: their feasibility, timing and approximate costs.

Your Committee therefore recommends to Council the adoption of such a study."

Council approved this memorandum on April 25, 1967, and agreed to appoint a Special Committee to start the study. The Committee was never appointed. At the time, plans were being developed to apply for a grant to fund a regional medical library program and preoccupation with the application which was written during the summer of 1967 seems to have obliterated the previous declaration of good intentions from all memories. The Task Force proposal, conceived as a Planning Grant, became a smaller part of the Regional Medical Library Program application, which became an operational grant proposal.

The planning function was assigned to a Visiting Committee which reported in December 1969. It recommended construction of a new building on the site of the parking garage as a "wholesale" library building. The cost of such a building was estimated at $3,000,000. This new building would house no more than 20 years of the College Library's material. Each year the 21st year would be transferred to the stacks of the old building. A bridge connecting the new and old buildings would facilitate access. No specific recommendation for stack provision was made, presumably on the assumption that transfer to the new building would provide a temporary solution.

The present unavailability of construction funds and scant hope for improved prospect in the near term leaves the problem of stack space still critical. With the encouragement of the President, a new solution is being sought.

A new look reveals that the combined capacity of the old and new stacks is about 372,582 volumes. This space is presently occupied by 253,924 accessioned volumes and approximately 319,698 unaccessioned items. It may fairly said to be overcrowded.

The present rate of growth is 6,000 to 7,000 volumes annually. The March 1967 estimate that two more floors on the new stack will hold 46,620 volumes has been modified slightly to predict its capacity at 47,124 volumes.

Unless the prospect for construction money from the federal government improves in the next few months, it seems best to raise funds for two new stack floors, to clear duplicates from the first floor new stack area, to shift the entire collection, to remove lesser used materials to the two new

upper floors, which will not be served by the stack elevator but only by stack lift, and to build an auxiliary staff room in the light well area over the upper lobby.

Institute for Advancement of Medical Communication: During the summer of 1970, the Library of the Institute was moved into the basement room on the front of the building formerly used for duplicate storage. This unique collection of materials on medical education, information systems, audiovisual and other communications techniques, data storage and retrieval methods, and library evaluation studies supplements the College Library in a previously neglected area. The Library staff is assisting in serials checking and such other procedures which can be absorbed.

W. Wallace Dyer, M.D.: The Library Administration records its sense of gratitude for having had the great privilege of working with Dr. Dyer during the last years of his dedicated life. His death deprived the Library of the wise counsel of a champion of its cause. Dr. Dyer's fresh viewpoint and vision of what the College Library can become will survive to challenge us to achieve his dream.

Personnel: The College Library lost the following staff members to the highly competitive career of home making: Mrs. Rhea Brown and Mrs. Faye Rastegar. The MEDLARS Section of the Regional Medical Library Program lost Lee J. Tanen to the new medical school in Stoneybrook, New York, and Alice Mackov to organize a Reference Section at Thomas Jefferson University. Thea Fischer completed work on her Library Science degree and moved to the Dental Pharmacy School Library at Temple University. Mrs. Kathryn Bernice Odom was transferred from the Reference-Circulation Department to the Medical Documentation Service. Mrs. Eleanor Taylor transferred from the Medical Documentation Service to the Serials Department. Other departures from the College staff include Dagmar Nemecek, Mrs. Elizabeth Bready, Anne Schor, Linda Justice, Mrs. Lynn Langdon, Dr. Adam Malc, Timothy Phillips and Valerie Suber.

New appointments include: Jackie Rustigian, Hospital Library Consultant; Mrs. Ruthanne Henner, Regional Reference Librarian; Mrs. Catherine Orner, Senior MEDLARS Analyst; Ellen Frost, MEDLARS Assistant; Kathy Tropia, Regional Secretary; Joan McKenzie, Head, Regional Photocopy & Teletype Section; Ellen Laskin and Mrs. Linda Younkin, Readers Service Assistants; James Butler, Serials Assistant; Richard Lombardo and Sherry Sidler, Library Pages; James E. Smith, Stacks Manager; and Richard Mascitti, Mail Clerk. Personnel changes in the Medical Documentation Service and in the Historical Section are reported in those sections of this Report.

The Library was represented at the 69th Annual Meeting of the Medical Library Association in New Orleans by Alberta Berton, Mrs. Sarah Caspari, Mrs. Beatrice Davis, Carol C. Spencer, Lee Tanen, Mrs. Michele Winters, and Elliott H. Morse who completed his year as President during the sessions. Mrs. Davis serves the Association as a member of the Curriculum Committee.

Resource Grant: The Resource Grant funding for the 04 year (calendar 1970) provided for three main areas of activity: 1., stack management, including the basement duplicate collection; 2., a crash binding program to rescue distintegrating but irreplaceable items, and heavily used reference materials; and 3., renovation of two rooms in the basement to house regional staff. The first two goals were adhered to with good results.

First the stacks area underwent considerable spot shifting to ease congested sections, an inventory of duplicate bound journals on the first floor new stacks was completed with a view to disposal by sale in order to make room for a major shift in 1971 to

take care of expansion in the next couple of years; and the duplicate unbounds were put under control with the orderly absorption into the collection of the flow of gift unbounds. The interested and efficient labors of James Smith have achieved these ends in the pursuance of which some twenty-five institutional requests for back issues were filled in part or in whole; about thirty medical students or interns purchased issues for their personal use; and nine shipments (approximately twenty-seven cartons) were made to used periodical dealers.

As a supplement to our regular binding program, 573 volumes were bound, of which 23 were old reference works in need of special binding. This program will continue in the 05 (1971) year, and should result in marked improvement in protecting the reference tools and in "catching up" on back-runs of journals not on the regular binding schedule.

The basement area was pre-empted by the acquisition of IAMC which now occupies the larger of the two rooms to have been renovated.

The funds allocated for this project were in the main carried over to the 05 year although a portion went to purchase the Minolta photocopier in the Reading Room, previously installed on a rental basis.

Special activities of the Assistant to the Librarian included the reception of fifteen groups of students from various area schools for library tours and lectures. Three Drexel library school classes met here during the year, and the Assistant participated in three others at Drexel (on her own time!).

The S. Weir Mitchell Associates: This program ground almost to a halt, only one endowment having been made, by Dr. James Kitchen II in honor of Dr. Claude Brown and Dr. Philip Kitchen. The journal choice is *The Canadian Journal of Microbiology*. In the fall two dinners were held to encourage S. Weir Mitchell affiliations. One on October 29 was held at the Union League hosted by Dr. Merle Miller and the other on November 24 hosted by Dr. Thomas Durant. It is hoped that these dinners will engender interest in and spread information about the program to the Fellowship, and that new endowments will result in 1971.

Benefactors: The Library acknowledges its gratitude to the following institutions which have shared the operational costs of the College Library this year:

NON-PROFIT INSTITUTIONS

Albert Einstein Medical Center (Northern)
Alfred I. du Pont Institute
Allentown Hospital
Bryn Mawr Hospital Medical Staff
Chestnut Hill Hospital
Crozer-Chester Medical Center
Fitzgerald-Mercy Hospital
Germantown Dispensary & Hospital
Hahnemann Medical College & Hospital
Hospital of University of Pennsylvania
Institute for Cancer Research
Institute for Medical Research
Lankenau Hospital
Medical College of Pennsylvania
Philadelphia General Hospital
Temple University
Thomas Jefferson University
University of Pennsylvania Medical School

CORPORATE INSTITUTIONS

American Cyanamid (Lederle Laboratories)
Amsco American Sterilizer
Atlas Chemical Industries
James Beasley
Bell Telephone Company
Brown, Conery, Kulp, Wilke, Purnell & Greene
Campbell Soup Company
Carrol-Dunham-Smith Pharmacal Company
Ciba Corporation
Cohen, Bellis, Morgan & Verlin
Cooper Laboratories
Council for Tobacco Research
Dechert, Price & Rhoads
Duane, Morris & Heckscher
E. I. du Pont (Haskell Laboratories)
E. I. du Pont (Lavoisier Laboratories)
E. I. du Pont (Stine Laboratories)
FMC Corporation (American Viscose)
Feldman & Feldman
Frank & Margolis
Freedman, Borowsky & Lorry

General Electric Company
General Technical Services
Goushian, Mooradian & Goldsmith
Hoffman-LaRoche, Inc.
Information Interscience Inc.
International Pharmaceutical Corporation
Johnson & Johnson Company
Kisselman, Devine, Deighan & Montano
Kolsby & Wolfe
Kramer & Harrison
Kremer, Krimsky & Luterman
Krusen, Evans & Byrne
Lea Associates
La Wall & Harrisson
Mancel and Lundy
McNeil Laboratories
Mead Johnson Company
Medical Communications
Merck & Company
Morgan, Lewis & Bockius
National Drug Company
Norwich Pharmacal Company
Pechner, Sachs, Cantor & Dorfman
Penn Central Railroad
Pepper, Hamilton & Scheetz
Perskie & Perskie
Chas. Pfizer & Company
Radio Corporation of America
Raynes & McCarty
R. J. Reynolds Company
Richter, Sykens, Ross, Binder & O'Neill
Roche Medical Electronics Division
Rodale Press, Inc.
Rohm & Haas Company
Schering Corporation
Smith Kline & French Laboratories
E. R. Squibb Institute of Research
Paula Stone
Sun Oil Company
Ted Thomas Associates
Universal Medical Services
Warner-Lambert Company
White and Williams
Wyeth Laboratories

Statistical Summary Inventory

	1970	*1969*
Accessioned items[1]		
Incunabula[2]	421	421
Manuscripts and typescripts	1,346	1,342
General	243,307	248,711
Accessioned pamphlets	10,313	9,566
	266,387[3]	260,040[3]
Unaccessioned items[1]		
Reports	28,822	28,822
Theses	63,370	62,855
Pamphlets, reprints, and microfiche	228,704	228,542
	320,896	320,219

Accessioned Acquisitions:

1970: 6,347 (3,217 by purchase; 2,709 by gift; 421 by exchange).
(books, 2,986; periodical volumes, 2,614; pamphlets, 747)

1969: 6,116 (2,941 by purchase; 2,869 by gift; 306 by exchange).
(books, 2,984; periodical volumes, 2,341; pamphlets, 791)

Unaccessioned Acquisitions:

1970: 677 items (theses, 515; microfiche, 14; miscellaneous, 148)

1969: 167 items (reports, 2; theses, 110; miscellaneous, 55)

[1] Accessioned items in this library comprise the total number of bound volumes and such unbound pamphlets as have been cataloged as separate bibliographical units regardless of their size.

There remain many thousands of unaccessioned pamphlets awaiting accessioning and cataloging. A true quantitative and qualitative picture of the library's holdings cannot be presented until this wealth of neglected material has been processed and duly registered in our 'accessioned' count.

[2] The Library owns 423 incunabula, but there are two instances of two bound together, reducing the number of accessioned volumes.

[3] Included in these figures are the following collections which are on permanent deposit in the Library: Gross Library, 3,976 accessioned items: Parry Library of the Obstetrical Society of Philadelphia, 217; Mütter Museum, 200. Mütter Museum books may not be removed from the College building.

Currently Received Serials

	Subscription	*Gift*	*Exchange*	*Total*
U.S.A.	617	436	53	1,106
Western Europe	939	69	124	1,132
Eastern Europe	151	33	61	245
United Kingdom and Eire	182	31	27	240
Asia (including Japan)	100	63	78	241
Latin America & West Indies	41	43	61	145
Canada	20	17	8	45
Pacific (including Australasia)	15	9	10	34
Africa	3	7	14	24
Grand Total 1970 (Dec. 31)	2,068	708	436	3,212[4]
Grand Total 1969 (Dec. 31)	1,955	751	476	3,182[4]

New Titles: A total of 118 new serial titles was added from November 1, 1969 to December 31, 1970. 24,382 separate issues were received, checked in and shelved.

Binding: During 1970, 1,319 volumes were commercially bound (1969, 1,213).
During 1970, 909 volumes were pamphlet bound in the library (1969, 529).

Readers' Use of the Library

Library hours: During the academic year the Library was open from 9:00 A.M. to 9:30 P.M. on Mondays and Wednesdays, from 9:00 A.M. to 5:00 P.M. on other weekdays. From June 1st until the first Monday after Labor Day, the Library was open from 9:00 A.M. to 9:00 P.M. on Tuesdays and from 9:00 A.M. to 5:00 P.M. on other weekdays, except Saturdays when it was closed. The following legal holidays were observed: Thanksgiving, Christmas, New Year's, Memorial, Independence, and Labor Days.

	Reading Room	*Periodicals Room*	*Totals*
Visitors			
1970	6,910	3,490	10,400
1969	7,368	3,747	11,115
	Intra-mural[5]	*Extra-mural*	*Total*
Circulation			
1970	22,137	25,354	47,491
1969	26,188	25,866	52,054
	Books	*Journals*	*Totals*
1970	9,536	37,955[6]	47,491
1969	10,474	41,580[7]	52,054

Interlibrary loans: The Library sent 48,119 (1969: 56,214) volumes on interlibrary loan. The 1970 figures include 30,336 (1969, 30,615) articles photocopied with Regional Grant support but they do not include the photoduplications noted immediately below.

Photoduplications: 163,760 pages were photocopied on request (1969, 192,300). Users of this service reimburse the College Library for copying and bookkeeping costs.

Donations

The donors of library materials for the past year number 69 (1969, 60). The Library is indebted for large gifts of books, pamphlets, and unbound periodicals to the following donors: American College of Physicians, Mrs. Charles Rupp, Smith Kline & French Laboratories, and Wallace Laboratories.

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[4] Titles are included in this count only if issues were received during 1969 or 1970.

[5] The number of volumes "consulted in the library" includes only those supplied on demand. Readers have access to the bound volumes of periodicals and reference works kept on the shelves in the Reading Room. The Fellows, and occasionally others, by special permission, have access to the book stacks. There are, therefore, many volumes consulted of which no accurate record can be kept.

[6] This figure includes 5,771 unbound current journal issues circulated from the Periodicals Room.

[7] This figure includes 6,976 unbound current journal issues circulated from the Periodicals Room.

Various publishing houses have presented volumes as follows: F. A. Davis Company, 29; Lea & Febiger, 20; J. B. Lippincott Co., 51; W. B. Saunders Co., 67.

Individual donors were as follows: Drs. Ann Whelan Arnold, William Blakemore, Leroy E. Burney, Gabriel Sanchez Cordero, Arthur First, G. H. Frey, J. Gershon-Cohen, Mr. Harold R. Gibson, Dr. Julian Johnson, Mrs. S. Leonard Kent, Jr., Mr. Robert T. Lentz, Drs. Edith J. Levit, Salvatore P. Lucia, Mr. W. B. McDaniel, 2d, Drs. Leo Madow, Benjamin Malzberg, Lee Milford, Craig Mucklé, Miss Grace Ottey, Dr. L. C. Parish, Mr. Charles R. Read, Drs. Carroll F. Reynolds, Jonathan E. Rhoads, Dickinson W. Richards, Enrico Branco Ribeiro, Richard H. Roberts, Fred B. Rogers, Mrs. Benjamin Rudnick, Drs. A. R. Shands, Jr., Katharine R. Sturgis, Robert Tauber, Joseph A. Wagner, and Irving J. Wolman.

Theses in the number of 586 have been received on exchange from the following schools of medicine: Universities of Basel, Bern, Copenhagen, Erlangen, Lausanne, Leiden, Liège, Louvain, Lund, Uppsala, and Utrecht.

The *Transactions & Studies* was sent, either on exchange or as a gift, to 575 organizations.

The Staff[8]

Librarian
Elliott H. Morse

Assistant to the Librarian
Mrs. Beatrice F. Davis

Library Secretary
Mildred C. Gray

Processing Dept.
Mrs. Sarah Caspari, Head

Cataloger
Carmine Salvato

Assistant Cataloger
Mrs. Kathryn Miragliotta

Junior Assistant
Josefa Sereda

Reference-Circulation Dept.
Readers Service Assistants

Ellen Laskin
Mrs. Juneann Lauderbach, Junior Assistant
Mrs. Linda Younkin*
Matilde Zalinski

Serials Dept.
Mrs. Marybeth Leary, Head

Serials Assistants
James Butler*
E. Naomi Frazer
Mrs. Catherine Ledwell
Mrs. Eleanor Taylor*

Historical Collections
W. B. McDaniel, 2d, Ph.D., *Curator*
Mrs. Lisabeth Holloway, *Associate Curator and Historical Cataloger*
Mrs. Judy Barnes, *Historical Ass't.*
Carolyn McAfee, *Historical Ass't.*

American Philosophical Society Grant Program
Frances Wright, Cataloger*

Regional Medical Library Program
Carol C. Spencer, Director
Jackie Rustigian, Library Consultant
Mrs. Michele Winters, Head, Reg'. Ref.
Mrs. Ruthanne Henner, Reference Librarian
Mrs. Catherine Orner, Sr. MEDLARS Analyst*
Mrs. Christine Balonis, Ref. Serv. Ass't.
Barbara Cassady, Evaluation Ass't.
Ellen Frost, MEDLARS Ass't.
Kathy Tropia, Regional Secretary

Regional Photocopy & Teletype-Section
Joan McKenzie, Head
Elizabeth Bertram, Ass't.
Mrs. LaVerne Pittman, Ass't.
Mrs. Carol Stills, Ass't.

Medical Documentation Service
Alberta D. Berton, *Director*
Fritz Danga, *Biomedical Literature/Scientist*
Linda Frantz, *Supervisor, Scanning Service*
Alfred Lisi, Ph.D., *Biomedical Literature/Scientist*
Erich Meitzner, Ph.D., *Biomedical Literature/Scientist**
Yoshi Nakayama, *Biomedical Literature/Scientist*
K. Bernice Odom, *Literature Scientist*
Harriet Rockwell, Ph.D., *Biomedical Literature/Scientist**
Mrs. Pearl Stark, *Biomedical Literature/Scientist*
Jean P. Carr, *Executive Secretary*
Anne McGinnis, *Bibliographic Assistant*
Barbara Sturdivant, *Data Systems Operator*
Mrs. Elizabeth Wright, *Data Systems Supervisor*

* Part-time staff

[8] Library staff list as of January 20, 1971.

PAGING STAFF

Thomas Askins*
Barnadette Baus
Mrs. Veronica Convery
Patricia Fox
Andrea Jancsura, Junior Assistant
Richard Lombardo*
Carol Sapp
Sherry Sidler
Margot van Rossum

* Part-time staff

STACKS MANAGER

James E. Smith

MAIL CLERK

Richard Mascitti

LIBRARY HISTORICAL COLLECTIONS

1. Curator's Report

The Historical Department's major accomplishments during the year may be found reviewed in the report by the Associate Curator, Mrs. L. M. Holloway—and quite properly so, as they represent primarily the products of her imagination and industry, as well as her management of the small, but amiable, staff made available to us. The senior Curator's time was chiefly devoted to attempts to assist visitors and correspondents in their use of our library historical collections; to reviewing the cataloguing of new, and the re-cataloguing of old, materials; and to the selection of desirable new materials, primary and secondary, available for acquisition by purchase.

Stimulated by the sale-prices in a recent dealer's catalogue of "Rare and Important Medical and Scientific Books," the senior Curator checked the medical items against our card-catalogue and came up with evidence that the library contains 46 of the items, for which the total asking-price was $21,880, and that it has 17 of the other items in a different edition which, in most cases, would be as valuable as the one being offered. This will perhaps help to explain, taken in conjunction with some knowledge of the limited funds available for such purposes, why we are obliged these days to tread slowly in the acquisition of medical *rariora* by purchase. Among the middle-aged items acquired by purchase are the following:

1. BOYLE, ROBERT. *Medicinal Experiments.* 5th ed. London, 1712.
2. KRAEUTERMANN, VALENTIN [pseud. of Christoph von Hellwig]. *Urin-Arzt.* Arnstadt & Leipzig, 1728.
3. YATES, WILLIAM, AND MACLEAN, CHARLES. *A View of the Science of Life; on the Principles Established in The Elements of Medicine of the Late Celebrated John Brown, M.D.; to which is subjoined a Treatise on the Action of Mercury upon Living Bodies ... and a Dissertation on the Source of Epidemic & Pestilential Diseases* [the latter two by Maclean]. Dover, N.H., 1801. [Austin 2100]

It is a privilege and a pleasure to be able to add, in this connection, that a number of the Fellows and other friends of the library have maintained the long tradition of donating to it materials of potential historical usefulness, such as, for instance, Dr. Herman B. Cohen's donation of various manuscript and printed records of the Philadelphia Laryngological Society.

Exhibits. A number of exhibits were installed relating to the programs in the 'History of Medicine' series sponsored by the American Philosophical Society, Bryn Mawr College, and the University of Pennsylvania (with the assistance of the Josiah Macy, Jr. Foundation) and held in the College. The Associate Curator prepared and discussed, for the Friends of the Horticultural Society Library, an exhibit of some of the library's early illustrated herbals. A comprehensive exhibit was installed for Dr. Daniel Blain's Kate Hurd Mead lecture on Benjamin Rush, delivered under the auspices of our Section on Medical History and the (since re-named) Woman's Medical College of Pennsylvania. An exhibit of classic texts and documents bearing on the history of naval medicine was offered in October. November saw the installation of two exhibits:

one related to the three papers on the program offered by the Section on Medical History; the second, prepared by a Fellow of the College, Meyer Naide, M.D., at the suggestion of Samuel X Radbill, M.D., a member of the Library Committee and an eminent medical historian, offered a fascinating display of sea-shells (some with recognized medical implications) selected by Dr. Naide from his private collection.

W. B. McDaniel, 2d
Curator, Library
Historical Collections

2. *Report of the Associate Curator and Cataloguer of Historical Materials*

Items Catalogued

Books added to the collection (including early and current works on the history of medicine, and gift books, also including volumes added to existing serials or sets)	782
Pamphlets (all but 36 having been done on the APS grant)	685
Pictures, documents and manuscripts	230
Analytics	85
Items calendared	343
Volumes recatalogued	134
	2,259
Cards prepared (of which 6,845 were portrait cards)	21,595

Manuscript cataloguing and recataloguing, the Associate Curator's part of the activities underwritten by the American Philosophical Society's grant to the Historical Collections (originally made in April, 1968), has progressed somewhat slowly. This year, only 88 items were prepared for an eventual published catalogue of the Library's 1,000 or more "major" manuscripts—that is, handwritten documents of more than letter or autograph length. This is, of course, exacting and complicated work, and immediate necessities of reference work and supervision must take precedence over it.

The second part of the project, which is to search, sort, and catalogue pamphlet materials from the Library's enormous unlisted collections, has produced 649 items during the year. This represents approximately five months of part-time work on the part of Mrs. Elizabeth F. Bready, who resigned during the summer, and approximately seven months' part-time work on the part of Miss Frances Wright. Steven J. Peitzman, now in his fourth year at Temple Medical School, contributed valuable occasional hours of searching. Miss Emily Penman assisted us for about five weeks in the summer as typist and clerk.

Mrs. Judy Barnes continues as Historical Assistant; her increasing experience and extensive acquaintance with the collection has provided the Associate Curator with welcome relief from some of her clerical responsibilities. In September, Miss Dagmar Nemecek left to take a teaching post; her place, as Historical Assistant for paging and book preservation, has been capably taken by Miss Carolyn McAfee. With the assistance, of course, of the other persons named in this report, the regular staff of the Historical Department has succeeded—in spite of the disruptions of painting and carpet-laying—in increasing our annual output of items processed by over 400.

For the second summer, the Historical Department has had the services of a student from Macalester College, St. Paul, Minnesota, as "Career Development Interne," under a program funded by Macalester. Richard C. Smith, a junior contemplating a career in library science, very ably continued his predecessor's project of calendaring manuscript contents of one of our most important scrapbook collections, describing 343 items—letters, other autographs, clippings, and portraits. Miss Linnea Sodergren, our 1969 Macalester Interne, is now at the Library School of the University of Chicago, on a National Library of Medicine Fellowship in medical librarianship. Both of these young people repre-

sent to the Associate Curator a very gratifying investment of her time.

In her capacity as Chairman for 1969–70 of the Philadelphia Regional Group, Medical Library Association, the Associate Curator volunteered herself as Instructor of Elementary Cataloguing in the Group's workshop program in April; both she and Mrs. Winters, of the Regional Staff, have since twice repeated their 2-hour courses and contributed a mimeographed outline to the Regional Library's hospital kit.

At the end of April, the Associate Curator attended the annual meeting of the American Association for the History of Medicine, held in Birmingham, Alabama. Once again, attendance at this meeting was both profitable and instructive.

During the summer and fall, our holdings of items mentioned in Austin's *Early American Medical Imprints, 1668–1820,* and in Ebert's "The Rise of the American Medical Periodical, 1797–1850," (*Bulletin of the Medical Library Association,* 40: 243–276, 1952) were established by a careful search of the card and journal catalogues. (In the spring of 1971, we expect these holdings to be microfilmed; these lists are already serving other purposes as well.) So also is another incidental project: the collection of our scattered lists of 19th-Century American medical graduates into a single portfolio, which should facilitate biographical search, much as has an earlier project with 20th-Century obituaries.

In late October, Mrs. Marlyn Kemper, who became acquainted with our Library during the preparation of her Master's thesis a year or more ago, very kindly offered her services as a part-time volunteer in the Historical Department; she began by indexing the more than 400 biographical memoirs in the College's *Transactions & Studies* since 1887.

These and other indexing projects afford considerable satisfaction to the Curators, as they bring light into corners of this great historical collection which have long been dark and enable us to hope that one day its resources will be fully available.

Lisabeth M. Holloway
Associate Curator, Library Historical Materials

Mid-Eastern Regional Library Program

The year 1970 was for MERML another year of change. Most notable of many changes were (a) the repercussions of the "equal access" directive and the quota system resulting from it; (b) the beginning of program expansion following the change from a part-time to a full-time program director; and (c) the appearance of "The Regional Medical Library, 1970, A Status Report," an evaluation by the National Library of Medicine.

At such a time it seems useful to assess our market position regarding customers and services.

Region III consists of Pennsylvania, Delaware, and the ten southern counties of New Jersey. The Region's population, information resources, and health science information needs are not evenly distributed throughout the Region, so it is unrealistic to expect service demands *ever* to be evenly distributed.

A reasonable objective would be for *all* areas of the Region to be informed about the Region's resources, especially about the nearest network access point, and to have minimum collections widely available at the community hospital level. The network should be able to carry on from there.

Table 1 indicates (a) the percentage of each of several user groups found in each of six geographic areas of the Region and (b) the percentage of each Regional service utilized in these same six geographic areas. Part (c) indicates the expected library activity in each area as predicted by MERML's quota model (see *T. & S.* 37(4): 318, 1970). Part (d) shows the percentage distribution by geographic area of the members of the Advisory Committee.

From this table we can get some idea of

TABLE I

User Distribution & Regional Service Utilization
by Geographic Area of Region

	Metropolitan Phila.	Eastern Pa.	Central Pa.	Western Pa.	Southern N. J.	Delaware
(*a*) *Users*						
1. Population†	27%	12%	14%	28%	15%	4%
2. Hospitals*	26	15	14	30	11	4
3. Hospital beds*	31	13	13	31	10	2
4. Active M.D.'s*	40	10	10	23	13	3
5. Teaching & research MD's*	68	2	3	19	5	2
6. Medical schools	71	0	14	14	0	0
7. Health science libraries (AMA-MLA list)	35	12	9	28	9	6
(*b*) *Services Utilized*						
8. Document delivery 1967	78	5	5	2	5	4
9. Document delivery 1969	58	9	8	11	10	4
10. Document delivery 1970	59	9	6	13	7	5
11. MEDLARS searches FY70	56	4	11	8	16	4
12. Reference questions FY70	67	5	9	4	9	6
13. Hospital library kits distributed	30	9	11	12	35	3
(*c*) 14. *Expected Library Activity* Health science personnel, weighted for research, From institutional quota model	53	7	7	21	9	3
(*d*) 15. *Advisory committee*	78	0	4	9	4	4

* 1966. from A.M.A. Dept. of Survey Res. Management Serv. Div. "Distribution of physicians, hospitals, & hospital beds in U.S. by census region."

† 1966, from World Almanac, 1970.

the difference between a desirable, attainable goal ("Reference service should be extended outside metropolitan Philadelphia") and a wasteful, unrealistic goal ("A third of all service should go to Delaware").

Document Delivery

Volume for FY70 increased due to inclusion for the first time of original loans (19,989, of which 12,620 were "walk-ins") with the previously counted photocopies (31,408), totalling 51,397 fills. However, photocopy itself increased 29.7% over FY69. Throughput time improved due to (a) inclusion of original loans and (b) installation of more efficient copying machines (two Xerox 720's) during FY70. Further effort to improve throughput time seems unwarranted (98% filled by day 0 or 1; 93% nonfills cleared by day 0 or 1). (See Table II.)

The impact of "equal access" and the quota system (begun January 1970) on document delivery was not as disastrous as had been feared by some. It helped to subregionalized the borrowing load. (See Table III.) Very little difficulty was encountered from borrowers. The effect on the College's fee paid copying service was negligible. (The effect on contributions to the College is complicated by the fact that contributors may obtain only originals, not copies, in return for their contributions. If this restriction were lifted, it is doubtful if any net effect on contributions would be seen.)

This table indicates that when one considers the population distribution, "where

TABLE II

MERML Production, 1969–1970

Service	1969		1970 (Quota System in Effect)			
	Qtr. 1 Summer	Qtr. 2 Fall	Qtr. 3 Winter	Qtr. 4 Spring	Qtr. 1 Summer	Qtr. 2 Fall
Document Delivery						
Received	15,455	16,077	13,597	13,531	14,366 (11,577)†	14,266 (11,926)†
Referred	976	1,092	906	989	1,202	1,316
Returned	563	631	506	563	590	579
Rejected	1.7%	1.8%	1.9%	1.6%	2.5%	2.5%
Filled	13,636	14,061	11,933	11,767	12,287	12,075
Fill rate	88.3%	89.1%	89.4%	88.3%	(9,498)† 84.2%	(9,735) † 83.7%
Filled, % day 0 or 1	95.8	99.8	99.9	99.4	99.6	92.6
Cleared, % day 0 or 1	89.5	96.9	96.9	88.9	83.3	64.2
Reference						
Quick reference questions	2,465	2,777	2,575	2,804	2,287	2,752
Bibliographies	9	16	7	9	16	19
Longer reference questions	167	266	330	603	486	534
MEDLARS formulations	38	110	148	241	149	169*
Training & Consultation						
Workshops	1	0	0	2	1	3
MEDLARS orientations	1	2	1	6	0	0*
Consultations & field trips	0	6	10	5	3	7

* Only one part-time temporary search analyst.

† Larger figure includes "walk-ins" (self-paged institutional loans); smaller figure does not.

the customers are," our service is moving in the right direction. The inescapable fact is, metropolitan Philadelphia is where most of the customers *are*.

Document delivery's percent rejection and percent filled rates have remained fairly constant at around 2 and 89 respectively. A constant watch on the reasons for nonfill has applied pressure to some weak areas with resultant improvement. MERML continues to refer most of its nonfills (10.8% of accepts) within the Region (4.9%) and only 1.9% to NLM, while 3.9% of accepts are returned to the requester. The parent library continues its policy of journal circulation. Of all originals loaned, 75% were journals. Of all requests received, 1.2% become nonfills because the item is on loan.

Reference

FY70 saw much improvement in this service. While the volume of quick reference questions, bibliographies prepared and citations verified remained fairly constant, longer reference questions and searches were more than tripled (× 3.6) during the year. Publicity for the reference services, sadly lacking heretofore, produced gratifying results. (See Table II.)

During FY70, 67% of the institutions served returned to ask additional reference questions, indicating some degree of customer satisfaction. Of the remaining 33%, nearly half (14%) had asked their first question during the fourth quarter and may well return during FY71. Follow up on the institutions who never asked again is planned for FY71. A list of reference users is being turned over to the MEDLARS group as a prospect list for MEDLARS.

Table V shows that reference users are concentrated in the Philadelphia area, but further publicity and the institution of toll-

TABLE III

DOCUMENT DELIVERY UTILIZATION: EFFECT OF REGIONAL PROGRAM AND QUOTA FROM "TEN OR MORE" LISTS

	Loans + Copies						Copies Only			
	1967		1969		1970		1969		1970	
Number of filled requests										
Metro. Phila.	36,688	90.5%	45,058	86.0%	38,021	80.9%	21,918	80.0%	21,604	73.4%
Other Pa.	1,466	3.6	4,004	7.6	5,654	12.0	(3,546)	(12.9)	(5,105)	(17.3)
East							737	2.7	1,121	3.8
Central							1,902	6.9	1,561	5.3
West							907	3.3	2,423	8.2
New Jersey	1,182	2.9	2,211	4.2	2,238	4.8	1,633	6.0	1,947	6.6
Delaware	378	0.9	423	0.8	716	1.5	316	1.2	643	2.2
Outside	726	1.8	661	1.3	356	0.8	—	—	117	0.4
Total	40,440	99.7	52,357	99.9	46,985	100.0	27,413	100.1	29,418	99.9
Number of institutions										
Metro. Phila.	87	68.0%	87	51.4%	115	52.5%	68	52.8%	103	51.8%
Other Pa.	13	10.2	45	26.6	62	28.3	(42)	(32.5)	(61)	(30.6)
East							13	10.1	15	7.5
Central							13	10.1	19	9.5
West							16	12.4	27	13.6
New Jersey	7	5.5	15	8.9	19	8.7	14	10.9	18	9.0
Delaware	6	4.7	6	3.6	11	5.0	4	3.1	11	5.5
Outside	15	11.7	16	9.5	12	5.5	1	0.8	6	3.0
Total	128	100.1	169	100.0	219	100.0	129	100.1	199	99.9

(Institutions borrowing less than 10 items/year are not considered in this table.)

TABLE IV

DOCUMENT DELIVERY BY GEOGRAPHIC AREA

District	% Institutions Serviced			All MD's	Health Sci. Libraries	Expected Library Activity
	1967	1969	1970			
Metrop. Phila.	78%	58%	59%	40%	35%	53%
Eastern Pa.	5	9	9	10	12	7
Central Pa.	5	8	6	10	9	7
Western Pa.	2	11	13	23	28	21
Southern N.J.	5	10	7	13	9	9
Delaware	5	4	5	3	6	3

free phone service for reference requests may improve this situation.

MEDLARS (Medical Literature Analysis and Retrieval System)

This service began at MERML in August 1969 and has steadily increased from 38 formulations in the first quarter to 241 formulations in the fourth quarter. A total of 77 institutions have now been served. The strong publicity effort launched during the third quarter appears to have had the desired effect. (See table II.)

Nearly half of the MEDLARS user institutions are outside of metropolitan Phila-

TABLE V

REFERENCE SERVICE BY GEOGRAPHIC AREA

District	Institutional Users, FY70	Teaching & Research MD's	Expected Library Activity
Metrop. Phila.	67%	68%	53%
Eastern Pa.	5	2	7
Central Pa.	9	3	7
Western Pa.	4	19	21
Southern N.J.	9	5	9
Delaware	6	2	3

delphia. Since 68% of the teaching & research population (as measured by active M.D.'s in non-patient care) is in metropolitan Philadelphia and MEDLARS is primarily a research tool, it is evident that the effort to extend MEDLARS service into the provinces has been at least partially successful.

One half of the institutions served by the MEDLARS group during FY70 returned with a second search request. Of the remaining 47.3%, two fifths (19.5%) asked for their first search during the 4th quarter and may well return in FY71. Other institutions who did not return for a second request (27.8%) will receive follow-up attention. New users may be obtained by working on the Reference Department's user list.

Despite some searches where negative results were deliberately sought, MERML's recall and precision ratios were above average for the MEDLARS system as measured by the Lancaster study (*Am. Doc.* 20 (2): 119–142, 1969).

MEDLARS throughput time for the last 6 months of FY70 was 64% by 15 days, 93% by 30 days. There was no backlog.

Characterization of MEDLARS users is shown in Table VIII.

TABLE VI

MEDLARS Service by Geographic Area

District	New User Institutions, by Quarter				T	Teaching & Research MD's
	1	2	3	4		
Metrop. Phila.	60%	72%	45%	50%	56%	68%
Eastern Pa.	0	6	0	10	4	2
Central Pa.	13	11	5	15	11	3
Western Pa.	7	0	25	0*	8	19
Southern N.J.	20	11	15	20	16	5
Delaware	0	0	10	5	4	2

*MEDLARS station at Univ. of Pittsburgh opened 3rd quarter.

TABLE VII

MEDLARS Performance

	MERML User Appraisal Forms (N = 101)	Lancaster Study (N = 299)
Recall	83.7%	57.7%
Precision	56.2	50

TABLE VIII

Medlars User Statistics

I. Area	
Teaching	2.7%
Research	43.9%
Patient Care	15.9%
Student	3.9%
Publication	10.7%
Other	22.8%
II. User	
Medicine	66.6%
Dentistry	5.2%
Veterinary Medicine	.8%
Nursing	.8%
Pharmacy	6.1%
Allied Health Professions	7.8%
Biological Sciences	5.2%
Other	7.8%

N = 114 Aug. 1969 to Feb. 1971.

Training and Education Activities

MEDLARS Orientations. Ten orientations of various types and lengths were given at 7 institutions during FY70. Standard user orientations were given at the College, Temple Univ., Univ. of Pittsburgh, Hershey Medical School, and Jefferson Medical School, while combined reference-MEDLARS discussions were given at Episcopal Hospital and Delaware Academy of Medicine.

Two presentations of MEDLARS-as-a-system were given to information science students at Univ. of Pittsburgh, and a MEDLARS exhibit was displayed at Doctors' Day at Harrisburg Hospital. While the number of orientations was not high, compared to other regions, much was learned during the year. The shorter sessions, the reference-MEDLARS discussions, were found to be more valuable to our users than were the longer, more formalized presentations.

Workshops. Introductory workshops on document delivery and reference service were given in Wilkes-Barre in June and at Erie, Altoona and Coatesville in the fall. In April & November MERML joined with the local MLA chapter in presenting workshops on elementary cataloging and on basic medical reference. Information on RML services was supplied to instructors of a workshop given by the New Jersey R.M.P. in April. MERML participated in workshops held at a New Jersey Hospital Association Meeting in Princeton in October and Trenton Medical Library Group in November. All workshops in Pennsylvania given by MERML, Western Pennsylvania R.M.P., Susquehanna Valley R.M.P. and Pennsylvania State Library are now coordinated through the state library. Better publicity has increased the number of workshop attendees. (Our mailing list, subdivided by county, is updated quarterly.) Workshops attendees are to be given follow-up service.

Hospital library kit. The hospital library kit for beginners was introduced in November 1969 to help weak libraries join the network, as a temporary stopgap until adequate staff time was available to produce smoother teaching aids. Reception was good beyond expectations. Requests came also from advanced hospital libraries who wished to use it for staff training.

Consultation and Field Trips

Field trips were made for 25 institutions (22 hospitals) during 1970. Nine were in metropolitan Philadelphia, 9 in New Jersey, 3 in eastern Pennsylvania, 3 in central Pennsylvania and 1 in Delaware.

Most of these were one day trips done by Reference, Administration, and MEDLARS staff in their spare time. After August 1970, they were done by the Hospital Library Consultant. During these trips we learned of two union lists we had not known of and introduced Regional services to many libraries who were not aware of or fully utilizing them.

Core Library. Transportation costs held down borrowing of our demonstration Core Library. It was exhibited at Wilkes-Barre, Coatesville, Princeton and at the College.

The multipurpose survey completed for us in July by Greater Delaware Valley R.M.P. served to promote the core library concept, to induce hospital administrators to upgrade their libraries, and to gather data for MERML's consultation & hospital library development effort.

Our major long range objective is to see that every hospital in the Region has the equivalent of the core library or better. Over half do not now have that much. Medicare funding and Resource Improvement Grants, as well as local community sources, would seem appropriate means of financing this objective.

Publications

Newsletter. One experimental issue prepared by an area library began the year. In May the first issue prepared by MERML staff emphasized instructional and informational values, rather than production values. It was well received, and is an important part of our effort to reach all users. The October issue, devoted to hospital libraries, surpassed the May issue in quality.

Serial List. This project, abruptly discontinued last year due to budget cuts, was reinstated when the shortage of funds proved to be less disabling than previously thought. Due to project supervision error, much of the basic title preparation of College holdings done during 1969 must be repeated. Plans called for completion of this phase by December 1970. This has been changed to May 1971. Closer monitoring of this project seems indicated. (MLCNY format is used.)

Announcement of services. A brochure announcing and describing Regional services has been prepared and is ready for printing.

Cost study. A preliminary report of MERML's interlibrary loan cost study ap-

peared in *Bulletin of the Medical Library Association* in April. The complete report has been accepted for publication in the *Journal of the American Society of Information Science.*

Program Analysis

Our survey of user needs proved less useful than we had hoped. Non-responders, those in greatest need of Regional services, are unrepresented. The needs of the non-teaching hospitals seem most representative of the have-not group we are trying to reach. They indicated acute staffing problems, need for audio-visuals and reference service. Training of non-professional library workers was selected as a high priority goal. Since any A-V program would be costly, we planned to publicize the A-V's available from other agencies until a source of support for our own A-V program can be found. Reference service was ranked high by all types of user institutions. This service was given high priority position, and has been publicized and strengthened. The survey showed a strong demand for faster document delivery service, but improved performance had already been achieved by the time the survey was analyzed. Further improvement would have a very high cost/benefit ratio. Messenger service, a choice of the medical schools, would benefit only local users, the "haves."

The quota survey brought responses from 253/411 hospitals. We estimate that 65% of institutions and 89% of health science population of the Region is represented in the responses. The quota system was instituted to comply with the "equal access" directive, to decentralize interlibrary loan borrowing, and to redistribute service to newer upstate libraries. That it did so can be seen in Table III.

A fringe benefit of the quota model is that apparently it does predict relative interlibrary loan generating capacity of an institution. For 161 cases in which we had both health science population data and total annual interlibrary loan borrowing, the Spearman rank correlation coefficient was +.69, significant at $P = .01$. This very crude model seems to be worth refining when more data are available.

From this survey we also obtained information on the strength of hospital libraries as measured by the number of current journals received and the number of professionals on library staff. This enabled us to decide if an institution actually had a library, and also whether a hospital library had something better or worse than the Core Library (over half had worse). This led to a high priority for Core Library placement.

Semi-automated statistical reporting with sampling was finally instituted in 1970, using available general programs.

Advisory Committee

The Advisory Committee met on September 18 and December 4, 1969, and March 19 and November 19, 1970. At the first two meetings, discussion centered about the "equal access" directive and how best to deal with it. The third meeting dealt chiefly with referral policy within the Region.

In the previous year, Advisory Committee meetings dealt almost entirely with the RML management's operating problems. The Committee had not yet been asked to perform its primary function, goal selection. It was hoped that in the coming year the emphasis could be shifted and that both the librarian/user ratio (15:8) and the city:upstate ratio (18:5) of the Advisory Committee membership could be substantially decreased. The November meeting occupied itself with this task.

Staff

The staff is comprised of 18.6 full time equivalents, including 5.3 professionals. Personnel supported entirely by the Regional grant include: Balonis, Bertram, Cassady, Frost, Henner, McKenzie, Orner, Pittman, Rustigian, Spencer, Stills, Tropia,

Winters; personnel supported partially by the Regional grant include: Baus, Berton, Convery, Davis, Fox, Frazer, Gray, Laskin, Lauderbach, Ledwell, Morse, Odom, Sapp, Sidler, Von Rossum, Wright, Zalinski.

Medical Documentation Service

Data processing systems adopted in 1967 were expanded further in 1970 when M.D.S. machine programmed the SDI Service, thus enabling M.D.S. clients to receive tape or punch cards in lieu of the manually typed citations previously provided. A successful pilot study made possible a full scale program by the end of the year.

The *Union List of Serials*, planned as a service within the Regional Program, continued in its progress under the guidance of Mrs. K. Bernice Odom, whose expertise in bibliographic material has proven invaluable. Expansion of the file to include ALL periodical title holdings, both currently received and closed entries, has been undertaken. It is anticipated that a complete file of College Library holdings will be available within this Regional Grant year, at which time some other libraries in the region may be incorporated in the program. Data processing of this file will be done by M.D.S. on-line terminal facilities with final tape merging and printing in cooperation with Miss Louise Schultz, Director of Research and Development, BIOSIS.

In addition to continued production of BIRTH DEFECTS, INFLUENZA and CYSTIC FIBROSIS on the new graphic arts computer system obtained last year, we produced a course syllabus for Drexel University School of Library Science, which replaced five texts formerly used in this class program.

The *Proceedings of the 7th Annual National Information Retrieval Colloquium* were typset on the MTST (Magnetic Tape Selective Typewriter) equipment and camera ready copy was produced by the composer system. This second effort at publishing an annual text will culminate with its release early in 1971 at a sale price of $15.00, and will prove to be an important text in the state of the art of information handling. Miss Alberta D. Berton, Director of M.D.S., served in the capacity of General Chairman of the 7th Colloquium, and as such is Editor of the Proceedings.

The Multiple Sclerosis Society requested M.D.S. to consider publishing an abstracting journal. A mock issue was provided the Society mid-year, and the Society's Executive Board is at present reviewing the scope and format.

In the course of the year, cooperative projects between M.D.S. and BIOSIS continued. The translation of 98,000 foreign titles in *Biological Abstracts* was completed and M.D.S. data processing equipment was used to create magnetic tapes of abstracts for a BIOSIS project.

Additional publishing efforts were the *1970 Edition of the JIM* (*Journals in Index Medicus*) *List* for the Philadelphia Regional Group of the Medical Library Association; the *Bulletin* of the Special Libraries Council of Philadelphia and Vicinity; and the *Newsletter* for the Delaware Valley Chapter of the American Society for Information Science. Miss Berton edited and produced these professional society publications with the aid of Miss McGinnis. Mrs. K. Bernice Odom assisted in the compilation of the JIM List. The *COPNIP List* (*Committee on Pharmacomedical Nonserial Industrial Publications*), a publication of the Pharmaceutical Division of the Special Libraries Association, is printed and distributed under Miss Berton's supervision.

Miss Alberta D. Berton, Director of M.D.S., entered into her second year as president of the Special Libraries Council of Philadelphia and Vicinity, and completed her term as chairman of the 7th Annual National Information Retrieval Colloquium held at the Sheraton Hotel on

May 7–8. During the year she was appointed editor of the *Newsletter* for the Delaware Valley Chapter of the American Society for Information Science, and in this capacity serves on the Executive Board of this organization. She also serves as past chairman on the ANIRC Committee. At a national level she was elected vice chairman of the Biological Sciences Division of the Special Libraries Association.

In collaboration with Dr. Oliver H. Buchanan of the Pratt Institute School of Library and Information Sciences, Miss Berton co-authored a paper which was presented before the Association of Consulting Chemists and Chemical Engineers, entitled "Present and Future Uses of Computers in the Chemical Industry." A series of papers are planned for publication in one or more of the professional journals, entitled "Biomedical Computer Applications."

Mrs. Pearl Stark, editor of M.D.S. publications, continued her dedicated services toward improving the quality and scientific content of these publications. She remains a steady arm of support to the entire M.D.S. operation.

Miss Linda Sue Frantz, Supervisor of the SDI (Selective Dissemination of Information) Service, broadened her activities through the course of the year by assisting on any and all projects in which her knowledge as a chemist provided an invaluable asset. With her assistance, the SDI Service was improved with the development of a more sophisticated method of reporting to our clients. She has also cooperated in a program of standardizing the reporting of bibliographic data in both our SDI program and in our publications. She was appointed to serve on the Awards Committee of the Special Libraries Council of Philadelphia and Vicinity.

Miss Yoshi Nakayama, as a chemist and literature scientist, provided M.D.S. clients with documentation of the literature pertinent to their interests. Much of her time was utilized in completing the collection of data for the toxicological contract with the Moore School of Electrical Engineering and the National Library of Medicine, which was begun the previous year.

Erich Meitzner, Ph.D., former Supervisor of Technical Information Services at Rohm and Haas, for a period of 33 years, joined the staff late in the year to evaluate and process the information for this toxicological program. Dr. Meitzner's chemical and linguistic skills have proved an invaluable asset to this department for its other projects.

Dr. Alfred Lisi, former Editor of *Carcinogenesis Abstracts,* has continued to provide us with his skills as an abstracter. The professional staff lost the services of Dr. Adam Malc during the year, as he passed his qualifying examinations and joined the staff at Northeast Hospital for his residency. We were fortunate to obtain the services of Dr. Harriet Rockwell, a biochemist with a versatile language skill as a replacement. Dr. Rockwell scans the literature in many languages and provides the department with foreign language abstracts for publication. Formerly head of an information group at Smith, Kline and French for many years, Dr. Rockwell brings to the department experience and skill in information handling. Mr. Fritz Danga, who joined the staff this year, adds his skills in linguistics to the scanning and abstracting of foreign language articles. His knowledge as a bacteriologist and microbiologist rounds out the disciplines offered by the skilled and experienced scientific personnel of this department.

Mrs. K. Bernice Odom, who also joined the staff this year, as previously mentioned, lends her exceptional skills to the Union List program in creating a detailed account of the holdings of the College Library. She further provides the department with editing of the SDI input material; has guided the program of standardizing the reporting of bibliographic information; and does an

excellent job as a literature scientist in search strategy. She was appointed chairman of the Awards Committee of the Special Libraries Council of Philadelphia and Vicinity.

Mrs. Elizabeth Wright continued in her capacity of supervisor of M.D.S. data processing equipment. Mrs. Wright has become an expert in data processing equipment of the type used in M.D.S. and her capable use of this equipment allows us to undertake many varied projects. Miss Linda Justice resigned to return to school at the end of the year, and was replaced by Miss Barbara Sturdivant, previously an MTST operator at Franklin Institute. Miss Anne McGinnis was promoted to bibliographic Assistant, replacing Mrs. Eleanor Taylor, who transferred to the Serials Department on a part-time basis. Miss McGinnis not only capably handles the Telephone Service provided by the department, but continues to aid in our publication efforts and is also a skilled data processing equipment operator.

Miss Jean P. Carr, the department secretary, with her long years of service, continues to lend her invaluable support to the activities of the department. She has developed an efficient subscription handling system for the publications offered by M.D.S.

Methods of handling the publications of the department have altered a bit. *Influenza* continues to be published by the Medical Documentation Service, with Alberta D. Berton as Principal Investigator. However, NIH has placed the responsibility for distribution with M.D.S., which previously had been handled by them. This necessitates the development of a control file for distribution. In mid-December, The National Foundation notified us that they would withdraw their support for the publication of *Birth Defects* at the close of the year, because of a change of direction in their educational program. Every effort is being made to find funding support to continue this publication. The National Foundation has given M.D.S. permission to become the publisher, and a letter to be circulated to the existing subscribers was prepared indicating this possibility and requesting an indication of their willingness to continue subscription at an increased cost.

As in the past, the policy of providing Fellows of the College with five hours of search service without charge has been continued. Approximately 52 Fellows have utilized this service, resulting in some 260 free hours of service, representing what might have been $2,340 of paid service. Discounts amounting to approximately $500 also were extended to Fellows. Personnel skills and time are essential to the provision of this service, which represents a cost factor in the operation of the department, not offset by income. In addition to search strategy services provided the Fellows, there has been an increasing demand for additional assistance, much of which is provided as a courtesy on a non-fee basis.

THREE YEAR COMPARATIVE STATISTICS

	Nov. 1, 1967 to Dec. 31, 1968	Jan. 1, 1969 to Dec. 31, 1969	Jan. 1, 1970 to Dec. 31, 1970
Scanning references reported	10,442	13,686	14,729
Average number of subjects	71	83	82
No. of clients in SDI	17	19	21
Abstracts			
English	1,066	2,132	2,627
Foreign	648	970	1,378
Total abstracts	1,714	3,102	4,005
Literature searches			
Retrospective	328*	470*	310
Bibliographic services			
Special projects			18
Telephone service			438
Translations	81	54	115
Toxicology program to provide data base of compounds		306	63
Scientific papers and texts, documented, written and edited	2	10	11
M.D.S. Xerox photoduplication requests			836
M.D.S. data processing services			2

* These include telephone services which are recorded as a new category beginning in 1970 because of the increase in this service. The new category immediately follows the Literature search line in the same Table.

Annual Report of the Committee on the Mütter Museum and College Collections, 1970

Mütter Museum

The Committee on the Mütter Museum is pleased to report that the Museum is vital, healthy, and actively growing. As in the case of patients who receive thorough examinations, minor surgery has been required. With the design in mind of improving the quality of the Museum, the Committee appreciated that it would be necessary to place a number of its exhibits in temporary or permanent storage. A succession of specialists have kindly offered to examine the patient's innards. The first consultant, Gonzalo E. Aponte, M.D., a member of the Museum Committee and Professor of Pathology at Jefferson University School of Medicine, made a series of inspections of the wet specimens during the heat of the last summer. Robert H. Ivy, M.D., D.D.S., a Fellow of the College, and Professor Emeritus of the University of Pennsylvania School of Medicine, Graduate School of Medicine and School of Dentistry, came to the Museum weekly for a period of three months in order to re-evaluate the Matthew H. Cryer Collection on the Internal Anatomy of the Face. Oscar V. Batson, M.D., a Fellow of the College and Emeritus Professor of Anatomy at the University of Pennsylvania School of Medicine, has payed repeated visits and has offered many valuable suggestions concerning the care of the anatomical specimens. Other consultants are yet planning to give us the benefit of their highly specialized skills in analyzing different exhibits.

The effect of these consultations is already apparent, and there should ultimately be an improvement in the general health of the patient. To the many who love the Museum's existing atmosphere, every effort will be made to retain its eighteenth-century charm. In view of the fact that the architecture of the main part of the Museum is patterned after the famous museum of John Hunter at the Royal College of Surgeons in London, it would seem ill-advised to change it.

The history of the Museum should record as a memorable event the retirement of Mrs. Ella N. Wade, Curator of the Mütter Museum and Custodian of the College Collections, who served The College of Physicians of Philadelphia for thirty-one years. On May 13, 1970, Dr. William I. Gefter, Chairman of the Mütter Museum Committee, and Dr. Fred B. Rogers, former Chairman, escorted Mrs. Wade to Mitchell Hall. Prior to the College Night Lecture, Dr. George I. Blumstein, President of the College, cited her before a large audience for the devotion with which she carried out her duties for many years. Mrs. Wade was presented with a gift from the Fellows of the College and, in the President's words, "best wishes for good health and pleasantries in the years ahead."

In the period from January to December 1970, many activities were recorded on the Museum's chart.

January–March: Dr. William I. Gefter, member of the Committee, was elected Chairman. Dr. Gonzalo E. Aponte became a new member of the Committee, replacing Dr. Fred B. Rogers, who had served admirably as Chairman. Dr. H. Edward Holling was elected to continue to serve. Mrs. Ella N. Wade began working on a part-time basis and Mrs. Elizabeth M. Moyer started to work full-time as Assistant to the Curator.

Miss Geraldine Linder, Special Publications, Related Educational Services, National Georgraphic Society, visited the Museum to view the medicine chest of Dr. Benjamin Rush. She requested permission to have their staff photographer take pictures of the chest and other Rush mementos for possible use in a book on the Lewis and Clark Expedition. President Thomas Jefferson had appointed Dr. Rush as medical advisor to the expedition.

The public relations department from Thomas Jefferson University sent a photographer to obtain pictures of memorabilia concerning Dr. Samuel D. Gross, Dr. W. W. Keen, Dr. Chevalier Jackson, and others for possible use on the cover of JAMA commemorating the 150th Anniversary of the Alumni of the School of Medicine.

Dr. Wilton Krogman, Professor of Physical Anthropology, University of Pennsylvania, visited the Museum to ascertain whether the Mütter giant was the same giant whose case history is in the Fillson Club in Louisville, Kentucky. After checking dates and measurements, he noted that they were not identical. Following an exchange of letters between Dr. Krogman and Dr. Thomas A. Courtenay, who initiated the inquiry, the Museum received a cast of the Fillson Club giant's hand. Mrs. Wade and Mrs. Moyer were amazed to discover, upon examination of the hand, the remarkable resemblance it bore to a cast of a hand in the giant collection, located in a Museum case since 1939. It had been donated by the famous authority on giantism, Dr. Charles Humberd, and is identified as follows: "Cast of the left hand of a 232 cm. giant of the infantilism type." Dr. Krogman was invited to return and investigate the mystery. After careful measurement, he agreed that the two casts seemed to be identical. Dr. Courtenay sent the Museum a brochure containing a picture and brief history of their giant. The Museum has thereby solved another mystery, and the picture of Jim Porter, giant, can be put on exhibit with the cast of his hand.

Dr. Gefter, Chairman of the Committee on the Mütter Museum, invited his good friend, Dr. Sami K. Hamarneh, Curator, Division of Medical Sciences, The Museum of Science and Technology, the Smithsonian Institution, to visit the Mütter Museum ostensibly to spend a few minutes. During the three hours he chose to stay, Dr. Hamarneh was heard to say repeatedly, "A fine collection, a fine collection." Dr. Hamarneh recalled that he had paid a visit to the Mütter Museum eleven years earlier, when he had just accepted his present position at the Smithsonian. "At that time", he said "I didn't have the background to fully appreciate the value and extent of the collections which the College of Physicians has here."

April–June: Robert E. Jones, M.D., Editor of the *Transactions & Studies,* asked permission to photograph five objects in the Museum in order to prepare slides to be used in a lecture pertaining to Dr. Benjamin Rush.

The House Committee of the Women's Board of Jefferson Hospital was given a talk and tour of the Museum and College Collections by the Assistant to the Curator, Mrs. Moyer.

At the request of Dr. W. Wallace Dyer, Executive Director, the Museum was opened on Sunday, April 12, for the wives of the Regents of the American College of Physicians. Mrs. Moyer gave a conducted tour of the Museum and the College Collections to a number of interested visitors.

A surprise visitor was Mr. Robert Monges, direct descendant of Jean Armentaire Monges, surgeon attached to the French Navy during the Revolutionary War. Mr. Monges was delighted to see the portraits of his illustrious ancestor. He later sent the Custodian important biographical information on Dr. Monges.

The Assistant to the Curator visited the National Geographic Society in Washing-

ton, D. C., and was given a personally conducted tour by Mr. T. Keilor Bentley, Curator-Director of Explorer's Hall. At the Armed Forces Institute of Pathology, Miss Helen Purtle, Acting Curator, gave Mrs. Moyer an extended interview, in which she outlined the changing role of the medical museum in the world of today. Miss Purtle promised to visit the Mütter Museum in a consultative capacity after May, 1971, when the new AFIP building at Walter Reed Hospital will have been completed.

The Committee recommended to Council the appointment of Mrs. Elizabeth M. Moyer as Curator, to take effect July 1, 1970, upon the retirement of Mrs. Wade.

On behalf of the Museum, Dr. Gefter attended the annual meeting in Washington, D. C., of the American Institute for The History of Pharmacy.

Dr. Jacob Sharp, Library Advisor, Dental Literature, Yale University School of Medicine, visited the Museum to look over the collection of old dental instruments.

Paul B. Sheldon, M.D., Princeton, N. J., authority on the history of medical instruments, visited the Museum to see the types of instruments used in the eighteenth century in America, as demonstrated in our exhibits.

Staff members of the College honored Mrs. Wade at a luncheon and presented her with a gift upon the occasion of her retirement.

Broken glass was repaired throughout the Museum and security measures were increased by the application of new locks on some old cases.

July–September: The new Curator visited medical sites in Edinburgh, London, Padua and Milan, especially those mentioned in the Journal of Dr. John Morgan in 1764.

New hours for visiting the Museum were instituted during the summer, and will continue in effect throughout the year. They are 9:30 A.M. to 12:30 P.M. and 1:30 P.M. to 4:30 P.M., Monday through Friday. The Museum will be open on College Nights from 5 P.M. to 7 P.M. as a courtesy to the Fellows and their guests. Dr. Daniel M. Albert, Assistant Professor of Ophthalmology at Yale University School of Medicine, visited the Museum in order to take photographs of the instruments designed and used by Eduard Jäger, for possible use in a book by Dr. Albert about Dr. Jäger.

The Mütter Museum was again listed in the Official Museum Directory of the American Association of Museums, which is published every ten years. The Museum was listed for the first time in the WFLN Guide.

Dr. Henry A. Streng, Associate Professor of Anesthesiology, Temple University School of Medicine, had some of our hypodermic needles and syringes photographed for use in a traveling exhibit concerning the development of the hollow needle.

The Committee and staff of the Museum was saddened by the death of W. Wallace Dyer, M.D., Executive Director of the College.

October–December: The Museum was authorized by Council to participate in the program of the American Association of Anatomists in Philadelphia, April 1971. Dr. Oscar V. Batson, anatomist, indicated his willingness to plan several exhibits for this event.

Two of the rooms on the lower level of the Museum have been closed to the public. They are opened only for special visitors, members of the medical profession, and tour groups. These precautions were taken for the safety of personnel and property.

Dr. Richard Collins, Bio-Medical Department of Drexel University, was a special visitor.

Mr. Robert Shosteck, Curator of the B'nai B'rith Museum, Washington, D. C., visited the Museum in connection with an exhibit he was preparing on "Jewish Contributions to Medicine in the United States".

The College agreed to the inclusion in *Philadelphia Medicine* of Museum hours, which Dr. Donald Geist, Fellow of the College, and Editor of the magazine, approved.

The secretaries of the Philadelphia County Medical Society paid a visit to the Museum during a lunch hour.

Dr. Harold D. Barnshaw, Chairman of the Ophthalmology Section of the College, brought the wives of the Residents at Wills Eye Hospital to the Museum for a tour.

Group Visits: Interest in the Museum was reflected by the number of visitors who signed the guest book. Over 2,500 persons recorded their names in 1970, 1,000 more than in 1969.

The Museum was visited by 43 groups. Orientation was provided in Thomson Hall followed by a guided tour. Groups included medical students, graduate and student nurses, high school biology classes, and career clubs. Four classes in anatomy came from local art schools. Paramedical schools accounted for four of the groups. One class in American history and art comes each year with Dr. Melvin Richman from Capitol Campus, Penn State University. Several of the groups had joint presentations and tours by the staffs of the Library and Museum.

Exhibits: The Curator of the Museum cooperated with the staff of the Library Historical Collections in preparing certain exhibits in the cases of the Main Hall of the College to coincide with the meetings of the Section on Medical History.

A good museum, like an iceberg, reveals only a fragment of its content, and the bulk remains unseen. In her new book, *Museums, in Search of a Usable Future,* an expanded and revised version of an earlier work, Dr. Alma S. Wittlin writes, "Modern man is not merely stimulated by his daily input of information, but is over-stimulated and fatigued by exposure to a great deal of irrelevant input which is a fallout of our selling-buying culture". She further states, "We need balanced mental diets in museums, befitting the capacities of human minds seeking more than the satisfaction of a fleeting curiosity".

There are very few authentic medical museums in the world. Here, in the Cradle of Liberty, The College of Physicians of Philadelphia occupies a unique place in history. The Mütter Museum provides a natural repository for rare pathological specimens and items such as instruments and other memorabilia which are identified with great men and events in the history of medicine. Such gifts as these from the many friends of the Museum, subject to Committee approval and Council acceptance, will increase the quality of its accessions and bring it to the status of a great Museum, high on the priority list of exciting places of interest to visit in Philadelphia.

The prognosis of the Museum, to perpetuate the analogy, appears excellent, but is primarily dependent upon the interest of, and attention by, all Fellows of the College.

College Collections

Mrs. Elizabeth M. Moyer was appointed Custodian of the College Collections on July 1, 1970, upon the retirement of Mrs. Ella N. Wade.

During last summer, renovations were made in Ashhurst Hall and in the Norris Room. At that time all the portraits and pictures were removed to Mitchell Hall. The Committee took this opportunity to have Mr. Johnson of Newman Galleries examine the paintings in order to ascertain which ones were in need of restoration. As a result, twelve of the portraits were restored, and fourteen new brass plates were ordered. Where necessary, rewiring was accomplished. The portraits in the Reading Room were re-aligned as they were rehung. The pictures in the Norris Room were evaluated with the cooperation of the Library staff; only those which possessed historical or artistic value were rehung.

Loans: Surgical instruments and ophthalmoscopes associated with Eduard Jäger were loaned to Dr. Daniel Albert, Assistant Professor of Ophthalmology, School of Medicine, Yale University, for an exhibit con-

current with the publication of Dr. Albert's book on Dr. Jäger.

A number of objects were borrowed by Dr. David Brodsky for an exhibit in Philadelphia on "Contributions of Jews in America to the Healing Arts."

Dr. Robert Shosteck, Curator, B'nai B'rith Museum, Washington, D. C., requested the loan of memorabilia relating to American Jewish Medical Pioneers. The Congressional Medal of Honor awarded Dr. Jonas Salk and apothecary scales owned by Dr. Isaac Hays were sent to him.

Accessions: There was a great variety in the accessions to the College Collections during 1970. A camera lucida and a large spring lancet were accepted from Dr. Harry Shubin. The cast of the hand of a giant, Jim Porter, which was received through the courtesy of Dr. Wilton Krogman and sent by Dr. Louis Courtenay, has been described in the preceding Museum report.

Dr. J. Monroe Thorington brought back two amulets and a hashish pipe after a visit in Morocco, adding to the Thorington Collection of charms and fetishes associated with medicine. The amulets (the Hand of Fatima and the Evil Eye) containing verses from the Koran, came from the Holy City of Moulay Idris. The pipe has two bowls and came from Azrou.

Dr. Robert H. Ivy was responsible for the acquisition of a dicephalic fetus, one head of which has a cleft-lip and cleft-palate. The fetus, sent by Dr. Byron E. Boyer, Cincinnati, Ohio, is believed to be unique. It has a complete case history with x-rays and photographs. Two monographs accompanied the specimen.

A Pilling folding mercurial apparatus, patent 1909, was submitted by Dr. Richard Orr of the Institute of Medical Communication. Miss Louise Heydrick donated an interesting assortment of eighteenth century medical instruments belonging to her ancestor, Dr. Christopher Heydrick, a surgeon at the University of Pennsylvania Hospital. Dr. Heydrick was a contemporary of Dr. Benjamin Say, early President of The College of Physicians.

Three instruments, given by Dr. Louis K. Elfman, included a laryngeal intubation set, a Shuster suturing hemostat circa 1927, and a Lukens tonsil suturing hemostat circa 1920.

A vial of Septazine was presented by Dr. Charles Weiss, retired immunologist, to whom the vial was sent from France. It was the first of the sulfonamides used in the California area for patient treatment in the mid-thirties.

The Committee is indebted to Dr. and Mrs. Francis C. Wood for their gifts of a double-light reflector for the restored portrait of Nathaniel Chapman by Thomas Sully and of a new frame for the portrait of Alexander Humboldt by Charles Willson Peale.

A handsome silver pitcher circa 1840 was presented to the College by Dr. Samuel B. Sturgis. It was given to Dr. Sturgis by Dr. Henry R. M. Landis (1872–1937), Fellow of the College, and one of the founders of the Phipps Institute for the treatment of tuberculosis. Dr. Sturgis was physician-friend to Dr. Landis for many years. The pitcher was originally purchased at Bailey & Kitchen (now Bailey, Banks and Biddle). It is on display in the medal case in the Upper Hall of the College.

Dr. Robert H. Ivy has secured a framed copy of a portrait of Dr. Matthew H. Cryer (1840–1921). The donor is Mrs. S. Leonard Kent, Jr., daughter of Dr. Cryer. The original oil by Thomas Eakins is owned by Leonard Kent III, grandson of Dr. Cryer.

Custodianship Cabinet: The Committee is in the process of recommending to the College a new Honorary Custodian for the Abbe Cabinet. One of the stipulations of the custodianship was that, if a custodian failed to name a successor, the task would fall to the Council of the College. Thirty-one years have elapsed since the last custodian, Dr. William Mayo, died without naming a successor.

Dr. Robert Abbe, donor of the Cabinet and the first mementos in it, established a fund for the maintenance of the Cabinet. The Committee has made plans for the refurbishing and rearrangement of the Cabinet, as well as for new lighting.

Mr. Edward Jones, mechanical engineer from the Franklin Institute, has offered to repair one of the historic mementos, the instrument used by Pierre and Marie Curie in their discovery of radium.

William I. Gefter, M.D.
Chairman

List of College Lectures, 1970

7 January 1970

COTZIAS, GEORGE C. Experimental Treatment of Some Neurological Disorders (Mary Scott Newbold Lecture XCVII; *Transactions & Studies,* July 1970.)

4 February 1970

KNOWLES, JOHN H. Current Issues Besetting American Medicine (Mary Scott Newbold Lecture XCVIII; *Transactions & Studies,* July 1970.)

4 March 1970

SULLIVAN, LEON H. Curing Explosive Disillusionment (Mary Scott Newbold XCIX; *Transactions & Studies,* July 1970.)

13 May 1970

KETY, SEYMOUR S. Genetic:Environmental Interactions in Schizophrenia (Benjamin Musser Lecture XI; *Transactions & Studies,* October 1970.)

4 November 1970

WURTMAN, RICHARD The Pineal Gland and Biologic Rhythms (Alvarenga Prize Lecture XXIX.)

2 December 1970

CHERKASKY, MARTIN Medical Care: Doctors and Community Control (James M. Anders Lecture XLIX; *Transactions & Studies,* April 1971.)

Transactions of the Sections

SECTION ON MEDICAL HISTORY

17 February 1970

Albrecht von Haller and Eighteenth Century Biology and Medicine. Nikolaus Mani, M.D.

5 May 1970

Benjamin Rush, M.D.—1970. Daniel Blain, M.D. (Kate Hurd Mead Lecture XXI)

3 November 1970

Ancient Korean Medicine. Sheila Gail Parish and Lawrence Charles Parish, M.D.

An Early Testicular Transplant. Thomas N. Haviland, Ph.D. and Lawrence Charles Parish, M.D.

S. Weir Mitchell: Investigations and Insights into Neurasthenia and Hysteria. Kenneth Levin

SECTION ON OPHTHALMOLOGY[1]

15 January 1970

Retinal Disease Symposium

Moderator: William C. Frayer, M.D.

Retinal Manifestations of Congenital Infection. David B. Schaffer, M.D.*

Light Coagulation of Macular Diseases. William H. Annesley, Jr., M.D., and Charles J. Campbell, M.D.*

Retinal Manifestations of Progressive Neurologic Diseases in Children. Lois J. Martyn, M.D.*

19 February 1970

Successful Treatment of Neovascular Glaucoma. George L. Spaeth, M.D.

Glaucoma in Association with Retinal Detachment. William S. Tasman, M.D.

Neoplasia and Glaucoma. Jerry Shields, M.D.*

Glaucoma and Cataracts. P. Robb McDonald, M.D.

19 March 1970

Our Meeting Room in the Philadelphia College of Physicians Building. Harold D. Barnshaw, M.D.

Ocular Localization of Intravenous Fluorescein. Michael Grayson, M.D.* and Alan M. Laties, M.D.*

Experimental Basis for the Bielschowsky Head Tilt Test. Barton L. Hodes, M.D.* and Thomas Behrendt, M.D.*

Surgical Management of Isolated Cyclo-Vertical Palsies. Donelson R. Manley, M.D.*

Cystinosis: Its Current Status. Vernon G. Wong, M.D.*

23 April 1970

Mycobacterium Corneal Ulcers. Wendell E. Willis, M.D.*, and Peter R. Laibson, M.D.*

Collagenase and Corneal Disease. Stewart Brown, M.D.*

Newer Concepts in Antibiotic Therapy. Donald Kaye, M.D.*

15 October 1970

Ocular Penetration of Topical Epinephrine. Alan M. Laties, M.D.*

Is Diabetic Retinopathy Controllable? Thomas D. Duane, M.D.

Surgical Treatment of Orbital Tumors: The Ophthalmologist and the Otolaryngologist. Arthur H. Keeney, M.D.

19 November 1970

The Pigment Epithelium and Bruch's Membrane: Their Role in Macular

* By invitation.

[1] Abstracts of the presentations at this Section customarily appear in the *American Journal of Ophthalmology* and *A.M.A. Archives of Ophthalmology*.

Disease. Michael J. Hogan, M.D. (Thirty-third Annual deSchweinitz Lecture)

SECTION ON OTOLARYNGOLOGY[2]

21 January 1970

The Common Deafness Syndromes of Childhood. R. J. Ruben, M.D.*

18 March 1970

Viral Diseases of the Inner Ear. Louis E. Silcox, M.D.

Otolaryngologist's Role in Oral-Facial Abnormalities. Sylvan B. Stool, M.D. (Annual combined meeting with Section on Otolaryngology of the New York Academy of Medicine, held at The College of Physicians of Philadelphia)

18 November 1970

The Infant Larynx. John Anwyl Tucker, M.D.

* By invitation.

[2] Abstracts of the presentations at this Section customarily appear in the A.M.A. Archives of Otolaryngology.

Vascular Anomalies Affecting the Air and/or Food Passages. Myles Turtz, M.D.

SECTION ON PUBLIC HEALTH, PREVENTIVE AND INDUSTRIAL MEDICINE

21 October 1970

Reminiscences of Public Health in Pennsylvania: The Cleft Palate Program. Robert H. Ivy, M.D. (Arthur Parker Hitchens Lecture XIV; *Transactions & Studies,* January, 1971)

18 November 1970

A Discussion of the Report of the Mayor's Committee on Municipal Hospital Services.

Moderator: Elizabeth K. Rose, M.D.

Participants: James P. Dixon, M.D., Edward S. Cooper, M.D., William L. Kissick, M.D., Francis J. Sweeney, M.D.

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1971

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Dr. John Morgan's 18th-Century Journey Abroad, Retraced in 1970[1]

By ELIZABETH M. MOYER[2]

While planning a vacation for the summer of 1970, I was influenced by two events—my appointment as Curator of the Mütter Museum, resulting in an interest in medical history, and my acceptance of the invitation of a friend to visit the south of France. Dr. John Morgan, one of the founders of The College of Physicians of Philadelphia, had recorded in a daily journal an account of his years of study and travel abroad. I decided that it might prove interesting to retrace in part the route he took over 200 years ago.

When Dr. Fred B. Rogers, a Fellow of the College, learned of my plan, he suggested that I, too, keep a journal and later, on my return home, use it to write an article. He helpfully provided me with cards of introduction to curators and librarians in London and Edinburgh which were of inestimable value when I visited these cities, and I was able to find traces of Dr. Morgan in both of them.

I first became interested in John Morgan in 1965, when I attended the commencement exercises at the University of Pennsylvania. This was a special occasion because the founding of the first medical school in our country was being celebrated, the School of Medicine at the University of Pennsylvania. Dr. John Morgan was prominently mentioned as the founder of the school. Sir John Bruce, Professor of Clinical Surgery and delegated representative, Senator Academicus, University of Edinburgh, Scotland, presented the address and received an honorary degree. It was a privilege to be a witness to this historic ceremony, recognizing the close ties between the two great medical communities of Edinburgh and Philadelphia. In the early days of our history, numerous Americans went to Edinburgh to earn their medical degrees, and, therefore, professors from this particular university had a great influence on our medical history.

Four years later (1969) I became a part-time apprentice at the Mütter Museum of The College of Physicians of Philadelphia to Mrs. Ella N. Wade, Curator-Custodian Extraordinary. After two months I became a full-time assistant, and began a preparatory training period so that I could take on the responsibilities of the Curatorship upon Mrs. Wade's retirement in June

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[2] Curator of the Mütter Museum and Custodian of the College Collections, The College of Physicians of Philadelphia.

1970. During these months, she introduced me to the Museum and to the extensive College Collections which can be found in every area of the building.

My interest in medical history was constantly stimulated as I continued in contact with medical memorabilia. One of my duties has been to conduct visitors about the building, including Mitchell Hall where the portraits of most of the Presidents, Vice-Presidents and Founders of the College are located. Among these portraits, there is one of John Morgan. I wanted to learn more about him and so looked in the College Library, where I found a book containing a Journal which he had written about his European Grand Tour. Limited to 164 copies, it had been distributed privately by Colonel A.S.M. Morgan and David T. Watson, descendants of Colonel George Morgan, younger brother of Dr. Morgan. The book contained the extant portion of the Journal together with a foreword and biographical sketch written by Miss Julia Harding Morgan.

Morgan's Early Years

John Morgan was born in Philadelphia in 1735. His father, Evan Morgan, had emigrated from Wales in about 1700. His mother, Joanna Biles, was the great-great-grand-daughter of William Biles, at whose home the first recorded meeting of the Religious Society of Friends on this continent was held in 1683, near the Falls of the Neshaminy Creek.

While quite young, John Morgan attended the Nottingham Academy in Cecil County, Maryland. This school was conducted by the Reverend Samuel Finley, who has been described as a "college in himself." The Evan Morgan home was located at 2nd and Market Streets in Philadelphia. Both father and son were friends, as well as neighbors, of Benjamin Franklin. This friendship was to play an important part in John Morgan's career.

John Morgan's medical training began with an apprenticeship to Dr. John Redman, a prominent physician of the time, who later became the first President of The College of Physicians of Philadelphia. After completing his apprenticeship, Morgan could have set himself up in practice. He was not satisfied with the extent of his medical education, however, and so wished to pursue it further.

In the Preface to his published *Discourse upon the Institution of Medical Schools in America*, May 1765, delivered at the commencement exercises of the College of Philadelphia, Dr. Morgan referred to the sequence of events in his career to that time:

> "The time of my apprenticeship being expired, I devoted myself for four years to a military life, principally with a view to becoming more skillful in my profession, being engaged the whole of that time in a very extensive practice in the army, among diseases of every kind. The last five years I have spent in Europe under the most celebrated masters in every branch of medicine, and have spared no labor or expense to store my mind with an extensive acquaintance in every science that related in any way to the duty of a physician, having in that time expended in this pursuit a sum of money of which the very interest would prove no contemptible income. With what success this has been done others are to judge, not myself."

Study Abroad

In 1760, John Morgan had left Philadelphia for London where he spent a year studying with eminent medical men of the period. While in London, he became proficient in the art of making anatomical preparations by means of corrosion, a process he learned from the famed anatomist, William Hunter. (Some of the finest examples of corrosion technique can be seen in the Mütter Museum, executed by Dr. Joseph Hyrtl, Professor of Anatomy at the University of Vienna in the latter half of the 19th Century.)

Through the friendship of Benjamin Franklin, who was then an agent of the Colonies in London, John Morgan met many celebrated people. Franklin displayed

a sincere affection for his young friend and saw in him the potential for a brilliant future. Upon completing his training in London, Morgan went to Scotland, carrying a letter from Franklin to Dr. William Cullen, outstanding medical teacher at the University of Edinburgh. During Morgan's two years of study there, he developed a lasting association with Dr. Cullen.

While studying at the School of Medicine of the University of Edinburgh, John Morgan became imbued with the idea of founding a medical school in the American colonies. It was his desire that young men with the same high aspirations as he had would be able to attain their goal without having to go abroad. After receiving his medical degree, he still had not fulfilled his thirst for learning. Consequently, in the latter days of 1763, he journeyed to Paris to pursue further study in anatomy. Here he perfected the art of corrosion under the surgeon Jean-Joseph Sue. Demonstrations of his methods at the Académie Royale de Chirurgie de Paris were judged so original that Morgan was made a corresponding member of that body. He composed, while in Paris, the inaugural address which he planned to make at the yet-unborn medical school in Philadelphia.

In the spring of 1764, Dr. Morgan left Paris on the next phase of his travels, which took him to southern France, Italy, Switzerland and Holland. Along the way he visited hospitals, medical schools and public institutions. He made a point of meeting distinguished persons from whom he could learn the latest advances in science.

As mentioned above, John Morgan kept a daily record of his five years of study and travel abroad. Unfortunately, most of it was lost when his home in Bordentown, New Jersey, was destroyed by fire during the War of Independence. Letters survived, however, which furnish a fair picture of his continental journey. This included his periods of study in London, Edinburgh and Paris, and his travels in southern France and Italy. Choice details have been preserved in a letter which he wrote to his Edinburgh friend, Dr. Cullen, on November 10, 1764:

"Can you forgive me if, upon my being just returned from my tour through France and Italy, I write you but a very short letter.... The most agreeable incidents happened to Mr. Powel and myself in our tour, which lasted about eight months. It was crowded with a great variety of the most interesting circumstances, full of pleasing scenes for the most part, and of a nature different from and more agreeable than what I have been commonly used to.... We were in the suite of the Duke of York at Leghorn, Florence and Rome, where we were particularly presented to him, and had access to all the grand entertainments made for his Royal Highness, which were indeed superb, sumptuous and magnificent.... We had a private audience with the Pope, four English gentlemen of us being presented at that time. He was affable and courteous....

When at Geneva, we paid a visit to Voltaire, to whom we had a letter, and were entertained by him with most singular politeness-for us I mean; perhaps usual enough in regard to Voltaire.... There is a pretty good ... medical university at Bologna, and Morgagni has a very crowded class at his anatomical lectures at Padua.... As to the grandeur of the ancients, from what we can see of their remains, it is most extraordinary. Arts with them seem to have been in a perfection which I could not have imagined.... The soul is struck with the review, and the ideas expand; but I have not leisure to dwell on these topics...."

John Morgan's congenial companion on this protracted itinerary was Mr. Samuel Powel,[1] who, as a close friend and fellow townsman, shared pride in the honors and distinctions which were bestowed upon the young representative of colonial American medical science. Along with the pleasant aspect of the trip, Morgan relates in his Journal some of the difficulties of travel which he encountered along the way. Let us take a first look into the Journal as he describes them in the excerpt which has been preserved of his travels from Rome to London.

[1] 1738–93, Mayor of Philadelphia in 1775 and again in 1789.

"Left Rome on *July ye 6th, Friday evening 1764* in company with Mr. Powel for Bolognia on our return to England; got into the chaise between eight and nine o'clock and travelled slowly all night. Ab't 8 o'clock this morning we stopped at Civita Castellana, 34 miles from Rome, and laid by during the heat of the day, not being able to travel from this hour until ab't 7 o'clock in the afternoon. *July 8th,* Having travelled on till midnight, we passed the town of Otricoli, and had scarcely got two miles when the chaise wheel broke down on the Top of a naked Hill. We were obliged to remain in this situation without any house to retire to, till Morning—and it was near seven o'clock before we preceeded on our Route—which we did till we came to the Town of Terni, where we stopped ab't 12 o'clock and waited for Dinner, having broken down our chaise a second time upon entering ye Town...."

After the chaise was repaired a second time, Morgan and Powel resumed their journey, jogging on at a leisurely pace and enjoying the arts and monuments along the way.

20th-Century Comparisons

Travel in the 18th Century was a far cry from travel today. We will now leave Dr. Morgan at this point in his story and begin my account.

Sunday, August 16, 1970. Flew from Philadelphia via jet to Paris. My travel companion abroad was Miss Florence Tricker, a personal friend and Swarthmore-born professional artist. Miss Tricker had been living in southern France and had painted scenery in the region through which Dr. Morgan had once traveled. On a visit to Philadelphia in 1969–70 she had helped me plan my itinerary before returning to France in May 1970.

Monday, August 17. I arrived at the Orly airport in Paris at 8:30 a.m. Changed planes for Nice. Enroute I recalled how Dr. Morgan had been obliged to travel by sailing ship to London and by packet boat from Dover to Calais. A great deal of his trip overland was made by landau, chaise, and diligence, sometimes pulled by mules and sometimes by horses. My trip was a breeze compared to the rigors of his long and tedious journey!

Florence Tricker was waiting for me at the airport in Nice. With her *pension* as a base, I was introduced to the charm of the quaint, unspoiled hill towns and the beautiful Cote d'Azur. It was rewarding to see in person the landscapes which she had captured so well in water colors and oils.

One of the most delightful local spots was St. Jean, Cap Ferrat, where W. Somerset Maugham, the physician-author, made his home and where he died at the age of 91 in 1965. At the top of a little hill on Cap Ferrat, we came upon a large bronze statue of the Madonna and Child which towered over a tiny church. These figures and their filigreed halos etched a lovely pattern against the sky. The statue was buried during World War II to hide it from the Nazis, and its painted metal now shows softly muted colors. Somerset Maugham had to leave his famous villa during the war, but he returned to it to live out his later years, after having it restored. We took a swim at a private beach on Cap Ferrat. It was such a pretty place; many French people were having picnics on the rocks and they made a gay picture as they lunched from their baskets. After a walk along the rocky path which winds around the cape, we took off in our Volkswagon to Villefranche, where we lunched along the sea. While eating our moules, we were entertained by an amusing trick bike-rider who sent the children into gales of laughter by pulling up short in front of them. I still have the artificial violet which he gave me from his funny straw hat.

Toward afternoon of that day we skimmed along le bas Corniche, up to le moyen Corniche and then to the storybook town of Eze, a fortress carved out of rock perched on top of a small mountain. We scrambled up the narrow street to the top, and sat on the balcony of a hotel that overlooked the valley. We sipped an aperitif of Campari and viewed the beaded necklace of lights strung along the Riviera. Going back to Nice in our little "bug," we

hugged le grande Corniche. We took backward looks at Eze in the moonlight, fully expecting it to disappear like Germelshausen or Berkeley Square.

Thursday, August 20. Terminating a delightful stay in southern France, Miss Tricker and I next took the train to Genoa. Dr. Morgan also toured southern France, then moved on to Genoa, Florence, Naples and Rome. As predicted, I found Genoa worth only a short visit. After the home of Columbus, the next greatest tourist attraction was the city cemetery piled high with statuary and flowers. If we hadn't stayed overnight, however, we would have missed an evening concert of Genoese folk music in a castle courtyard atop a hill.

Friday, August 21. Boarded the train and were on our way to Florence. We checked in at the English-type Hotel Berchielli and soon were walking along the Arno River toward the Ponte Vecchio.

Rode by bus to the Piazza de Michaelangelo, on one of the Florentine hills. The Casa Buonarotti, Michaelangelo's family home, is there and one can see a few of his wax models which he used when preparing for his sculptures. A large statue of Michaelangelo stands on the piazza, from which there is a fine view of the city. San Miniato del Monte is located here, a charming small church filled with work by Fra Angelico and della Robbia. I bought several items from a jolly priest in a white habit who conducted a souvenir shop there. Afterward we had ices on a terrace overlooking the famous Medici gardens. Contemplating the fact that Dr. Morgan also visited Florence, one is saddened by the thought that his description of this art-filled city has been lost. He visited Florence on the way down to Rome. We visited Florence on the way to Bologna. Let us rejoin Dr. Morgan and Mr. Powel in their journey and make some 20th-Century comparisons.

"*Sunday, July 13th 1764* . . . At 4 o'clock p.m. We proceeded to Faena ab't 23 miles further on towards Bologna, in w'ch after having travelled 10 or 12 miles we came to a most beautifull level & rich country well Cultivated & agreeable, ornamented with an Intermixture of Fields, vineyards & large trees. Stayed all night at Faena."

Sunday, August 23, 1970. Left the city of Florence and traveled by bus on one of the CIAT (Compagnia Italiana Autoservizi Touristici) Ribbons (highway routes). As we rode comfortably toward Bologna, we found the countryside to be as "beautifull" as Dr. Morgan had described it. The orchards, heavy with fruit, were interspersed with cultivated farmlands and vineyards.

"*Sunday, July 14th, 1764* . . . After Dinner we remained here on acc't of the great heat till five o'clock, & then proceeded to Bologna, w'ch we entered ab't 9 o'clock, & put up at the Pellegrino, one of the best Inns in Town. All the way from Rimini to Bologna, we observe that most commonly there are Piazzas before the Doors of all the Houses, that are better than common, resembling the Piazzas of Convent Garden & serving to shelter foot passengers from the Heat of the Sun."

August 23, 1970. As our bus approached Bologna on Sunday afternoon, we could see that the streets were lined with covered sidewalks; the Bolognese call them "*portici.*" The main streets, many of the side streets, and solitary buildings are constructed with second-floor canopies supported by stone columns at the curbs. There is a law in Bologna that all new buildings must follow this ancient design. These arcades shield the sidewalks from the weather, which often is rainy. It was amusing to watch pedestrians when it was raining, carrying their umbrellas as they strolled through the *portici,* suddenly popping up the umbrellas as they scurried across the intersections, and, upon reaching shelter again, collapsing their umbrellas and resuming their leisurely pace. The changing patterns, made when the sun filtered through the arches, were fascinating to watch. These endless arcades also had a frustrating aspect for the tourist; they presented such a homogeneous facade that one

found it difficult to become spatially oriented.

Added to our seeming confusion was the language barrier. Bologna is not a tourist town. It is a busy city of one-half million people, courteous, but all minding their own business. The sight-seeing brochures are scarce and printed mainly in German. It wasn't like Florence, where the traveler can usually find at least one person in each shop or hotel who can speak or understand English. At dinner-time that evening the owner of our second-class hotel sent his two English-speaking problems to the first-class hotel next door which he also owned. In the dining room we were overjoyed to hear a cordial greeting in English. The *maître d'hôtel,* trained in Switzerland, had worked in a London club. After finishing our dinner, we knew why this city is sometimes called "Bologna the Fat"—it is supposed to have the best food in all of Italy.

Dr. Morgan occasionally commented about the food; he complained now and then about the rain and the heat. In spite of these annoyances, he didn't miss one of the works of art or monuments in Bologna or in any of the other cities he visited. After a visit to the Cassara Palace, he recorded that it "was finely ornamented with good paintings and Tapestry." We found examples of the famous tapestries of Bologna in a church, arrayed on side altars; the petit-point was exquisitely worked. There is even a museum of tapestries in this city.

We visited the Basilica of San Petronius. Named for the patron saint of Bologna, this imposing church, sixth largest in the world, is still unfinished, although it was started in the 14th Century. As the years went by, many loving hands worked on the basilica, but the people were constantly running out of funds. In the 16th Century, the Bolognese appealed to the Pope in Rome for money to complete the job. He answered, "You are not the center of religion, Rome is; but, you are the center of learning. I'll give the money. Build a University with it." So they did, right behind the unfinished basilica.

Because this city has been, and still is, a center of learning, it has another nickname, "Bologna the Wise." The original building of the University, still standing behind the basilica, is called the Archiginassio. It now houses one of the city libraries; its interior is considered to be one of the most beautiful in the world.

One of the rooms in the Archiginassio is the renovated Anatomic Hall, containing the world-famous "Men of Lelli" (Figure 1). Ercole Lelli (1702–66), who carved these two beautifully-detailed wood sculptures, was also a modeler in wax. He had an assistant for a few years named Giovanni Manzoline, a young sculptor, who soon surpassed his master in the excellence of his wax modelling. Lelli and Manzoline, as might have been expected, soon parted company. Manzoline, now on his own, married one of his assistants, a pupil named Anna Morandi (1716–74). She showed such enthusiasm and zeal for her work that she came to excel her husband; her models showed exquisite detail and a profound knowledge of anatomy. When Giovanni Manzoline died, Anna was elected a Fellow of the University of Bologna and a member of the Academy Clementine, a signal honor for a woman. Dr. Morgan visited the Academy while in Bologna.

"Friday, July 19, 1764 Academia Clementine... The ceiling of the first Room is a Representation of the Voyage of Ulysses from ye Odyssey very well done by Tibaldi. A good picture of St. Catherine of Bolognia, in habit of a nun who is a Paintress and Patroness of the City; she is represented as painting, whilst a Cupid holds up the Canvass while she paints.

"Next room are many anatomical preparations for teaching Women the art of Midwifery, most of them prepared by a celebrated female anatomist whose name is Sgna. Anna Manzoline (her maiden name Morandia).... There were some good skeletons & artistic subjects of wax, particularly a most elegant Adam & Eve done in Wax by ye celebrated Signora Manzoline....

FIG. 1. Men of Lelli, Archiginassio, Bologna.

"*July 19th A.M.* This morning at 6 o'clock went to see ye Students of painting copying nature from ye Life- at the Academia Clementine, where a naked man presented himself for two hours, in such posture as ye Master thought fit the Students should delineate. This was done three times a week; so long the attitude is the same, which is changed every week. After Breakfast paid a visit to the celebrated Doctress & Professor of Natur'l Philosophy. Laura Maria Catherina Bassi, who was employed at our coming in giving lectures upon light & Colours shewing the 4 primary Colours, which she said were red, yellow, blue & green, the purple, orange & violet being compounded of these.... After this she discoursed very learnedly on Electricity & other philosophical subjects, introduced me to her Husband who is Professor of Medicine in the College, and when I left her, was greatly pleased at her affability. She spoke in french....

"*Sunday, July 21, A.M.* Rec'd a visit this morning from Doct. Serrati, Professor of Medicine at Bologna & Husband to ye celebrated female Profess'r of Nat'l Phil- in this City- Laura Maria Catherina Bassi, Conversed on Anatom'l & Medic'l Subjects & charged me with a Lett'r introductory to the Acquaintance of the celebrated Morgagni at Padua.

"*Monday, July 22.* Set out this Morning from Bologna for Padua between four and five o'clock. Stopp'd to dine at an indifferent Inn twenty miles from Bologna and on acc't of the excessive heat of the sun stopp'd here from ab't midday till five o'clock: then proceeded 12 Miles on to Ferrara. Put up at the Post House where we had for Supper a boiled fowl a stewed fowl & a roasted fowl, and

little more, for which the Landlord was unconcionable eno' to demand 18 Pauls.

"*Wednesday, July 24* Festv'l of St. James. Proceeded on our Journey ab't 7 o'clock this Morning. When within three Miles of Padua, met a great throng of People in a pleasant Wood upon the road side, who were got together to feast, frolic & race horses. We reached Padua about 10 o'clock, w'ch is a very large, fortified & ancient city' seems very populous; but the Buildings in general old & ruinous. The Streets very unevenly pav'd with stone, w'h makes riding in a Carriage very disagreeable ... P.M. Went to pay my respects to the celebrated Morgagni-Professor of Anatomy at Padua to whom I have Letters from Dr. Serrati of Bologna. He received me with the greatest Politeness imaginable, & shew'd me abundant Civilities with a very good grace. He is now 82 y'rs of age, yet reads without spectacles & is as alert as a Man of 50." (Dr. Morgan was 29 years old at this time.)

"I found that he was unacquainted with anatomical preparations made by corrosion. I show'd him a piece of kidney w'h I had injected at Paris and w'h was finely corroded. Broken as it was he was highly pleased for ye state it was in from having brought it so far.... "He then carry'd me into a small Cabinet where he shew'd me a great Number of Skeletons of the human foetus in a Series from a few weeks old to 9 months; & from that upwards to an Adult.... In this Cabinet he had a series of the Portraits of Old Anatomists, his famous predecessors at Bologna, in w'h he pointed out a particularity with regard to their dress—the necks of the first being covered in a kind of Caul like a Monks Hood-this gradually lessened & a fit lining taking place, but ye neck less covered up till at length they came to wear bands w'h at first were small & gradually enlarg'd to ye greatest Size....

"I presented him before coming away with my Thesis (*De Puopoiese*), and he was so good as to do me the Honour of making me a present of his late Publication two Volumes in folio *de Sede et Causis Morborum*[2] of w'h there have been 3 different editions within these 3 years—being in ye highest Estimation throughout all Europe, & all ye Copies of the last Edition allready bought up."

"*Thursday, July 25th, 1764.* St. Ann's Day—This Morning went to ye Sal de Ragione or Hall of Justice-belonging to the Town House w'h is 110 Paces long & 36 wide-each pace at least two feet." (This Hall is among the largest halls in the world.) "At one end is a stone stool, called the Lapis opprobii. In times past, whatev'r citizen, sat upon this with his Breeches down & declared 3 times publicly that he was not capable to pay his debts was acquitted by an Act of Insolvency, so that he could not be put in Prison for them—but for these 100 years past the Custom has been abolished. This Hall is full of paintings in fresco—most of them very odd, but some of them executed indifferently well." (The walls above the windows are covered with some 400 frescoes, originally painted by followers of Giotto and later redone. The subject of the frescoes was taken from the physician, astronomer and mathematician, Pietro d'Abano.)

"Our Guide conducted us to see the Trojan Horse as he call'd it, made in imitation of that described in Homer w'h was carryd into Troy filled with arm'd men. The City of Padua is said to have been founded by Antenor who came from Troy & there is a Sarcophagus set up in the Street of Padua dedicated to Antenor. This Horse is very large, made of Planks like a ship's sides; a kind of rudder passes thro' the neck w'h people in the Belly of the Horse could direct ye Head by. It was formerly made by orders of a noble family of Padua at the celebration."

August 24, 1970. Left Bologna by bus for Padua. Florence and I had a much better time in Padua than in Bologna. Although many of the streets are covered with arches as in Bologna, this did not pose any problem here. We found the Paduans friendly and helpful, and, to our joy, some of them English-speaking. I went directly to the University of Padua.

Dr. Morgan had only this to say about the University, because he too visited in the summer when people were on vacation: "The University is a handsome building, but the architecture of the piazza and the beauty of its appearance exceeds any others I have seen."

I was luckier than John Morgan on my visit. Although the university was on holiday, its old part was open. The Curator was on vacation, but I was fortunate in finding Sgr. Guido Marcato who spoke English and conducted me about. This tour was one of the high spots on my trip. The university, second oldest in Italy, was started in 1222 when a group of teachers

[2] *De Sedibus et Causis Morborum.* In December 1788, John Morgan sent the first recorded donation of books "to be added to the College Library." One of the treasures in the Historical Collections of the Library is this treatise, in which Morgagni, founder of pathological anatomy, compared post-mortem findings with clinical records in 1430.

and students left Bologna to establish themselves in Padua. It was founded in 1493, and only in 1501 were the various halls of study gathered together in the Palazzo del Bo, so-called because the former building was a hotel with the sign of the ox. The courtyard has a double loggia; the columns on the upper level are Doric, those below Ionic.

Signor Marcato first took me into the Sala della Facolta de Medicina e Chirurgia, the room where the medical students are examined for approval by the medical faculty. I found hanging on the walls of this handsome room some of the portraits which Dr. Morgan had seen when visiting Dr. Morgagni and which had become the property of the Medical School: Variolus, Fallopius, Vesalius, Fabricius, Eustachius, Sylvius, Gallus, Malpighi, and Anna Patavani. Also there are skulls of great scientists, including those of Caldani, Santorio, Gallini, and Corti.

Signor Marcato next conducted me into the Hall of the Forty. This is the room where Galileo lectured and where one can see the lecturing pulpit he used. The walls are lined with full-length painted figures of students at the University of Padua who became famous. The student body was divided into nations, and if a student came from a small country that was not represented, he was invited to become a member of one of the larger groups.

Some of the men pictured in the Hall of the Forty were Spigelius, Linacre, Harvey, Goldsmith, and Eleanor Lucrezia Connaro, the first woman in the world to receive a Ph.D., in 1676. As one stood in this modest little room, one was overwhelmed by its antiquity and filled with gratitude for the contributions made by these scholars.

The Italians have a gift for blending the old with the new. We next entered the magnificent Great Hall, constructed in 1553. An enormous painting on the ceiling depicts Science spread to all the world by angels. The walls are covered with stemmi, the coats-of-arms of the rectors, students, who, with the professors, ruled the University. When a rector was poor and possessed no coat-of-arms, noble patrons had his name inscribed on a special plaque so that he too could be honored (Figure 2).

From this majestic hall, we went to the Anatomical Theatre, built of wood in 1594, the only Renaissance structure of its kind still completely preserved. It is shaped like a cone; several tiers of narrow balconies ascend to its top and widest part. There were no windows at first, because dissections were forbidden and were done clandestinely. The rooms in this building were in sharp contrast to one another, ranging in style from grandeur to simplicity. The mission of my journey was to steep myself in medical history, and as I stood in this place, I felt myself going back in time. It was wonderful to bridge the gap between past and present and to become a part of this heritage.

In the 16th Century, when the anatomical theatre was built, a canal ran beside it. So, after dark, cadavers were brought in by boat, right under the dissecting table. The table, located on the floor of the cone, had a movable, hinged top which opened out. A cadaver was hauled up by pulleys from the boat below; the table was closed and the professor could begin his dissection. In the flickering light of candles and torches, the professor lectured, assisted by two of his associates, one dissecting and one pointing. Since there had to be some ventilation, air passages were constructed in such a way that no light was visible outside. Illumination was so meager that the medical students had to alternate rows in order to get a better view of the dissection.

There is a bust of Morgagni in the theatre, erected in 1769 by German professors and students. Vesalius, Fallopius and Malpighi were also famed anatomy professors there.

Fig. 2. Great Hall, University of Padua.

Before we said goodbye, Sgr. Marcato suggested that I should lunch at the historical Café Pedrocchi. I took a photograph of my gracious host as he stood before the door to the Medical Faculty Room; some of the famous stemmi can be seen in the background (Figure 3).

We walked to the Café Pedrocchi. This attractive place was built in 1831 for Antonio Pedrocchi, a coffee merchant; it was presented to the town by Domenico Pedrocchi in 1891. During the Risorgimento, the café was the favorite meeting place of students, intellectuals and patriots. It was here, on February 8, 1848, that the student uprising and subsequently the rising of the whole town against the Austrians began.

Our next destination was the famous "Santo," St. Anthony's Basilica. On the way to the bus stop, we took a wrong turn and, fortunately for us, found ourselves on the square which is dominated by the Palace of Justice, called the "Salone" by the Paduans. A guard on duty there took us through the Palazzo de Justica; it was still as Dr. Morgan had described it. Some of the frescoes, however, have become quite faded through the years; but the hall is still quite an imposing structure. To my delight, I saw the colossal painted wooden horse, mentioned by Dr. Morgan, as well as the 13th-Century stone debtor's stool.

The guide indicated to us which bus we should take to see "Il Santo," and soon the basilica was in sight. The Piazzo del Santo has an inviting quality about it; it is decorated with gaily-colored souvenir stands. Here I bought some St. Anthony medals for friends back home. Opposite the basilica stands the equestrian statue of Gattamelata (1453), the well-known sculpture by Donatello. It was inspired by classic models, in particular, by the equestrian

Fig. 3. Guido Marcato, University of Padua.

tatue of Marcus Aurelius on the Campi-
loglio in Rome.

The basilica was begun in 1232, a year
after the death of St. Anthony; it is the
econd great church built by the Fran-
iscans. Although the architecture is a fusion of various styles—Romanesque, Gothic, Byzantine and Arabic—the effect is pleasing as they were conceived to harmonize with the whole. The interior was another story. In the Chapel of the Treasure and the Chapel of the Arch of the

Saint. the clutter of statuary was amazing. Of more value were the paintings and frescoes in the Oratory of San Giorgio, the School of St. Anthony and the Civic Museum. Giotto, Bellini, Tintoretto and Titian are represented here.

There is also a library which numbers over 20,000 volumes, more than 2,000 manuscripts and 400 incunabula. The archives contain over 50,000 volumes and 40,000 parchments and documents dating from the 6th Century. The Botanical Garden, which dates back to 1545, is the oldest of its kind in Europe. There are many ancient trees; the oldest is the Vitex agnus castus, planted in 1550. Here too is the Goethe Palm, so-called because the poet studied it during his travels in Italy in 1788. There is also a Botanical Institute with library and herbarium.

From the Botanical Gardens we went down the Via Donatello to the Prato della Valle. Set out in 1775, it is an oval greensward skirted by a canal and lined with 78 statues of former professors and students of the University of Padua. This is a true University town. On his tour, Dr. Morgan moved next from Padua to Venice.

"*Friday, July 26, 1764.* Left Padua at 4 o'clock in the Morning; went in a Chaise ab't 10 or 12 miles—then in a Gondola to Venice, w'h is distant from Padua 26 Miles. The Road & Country as we approached nearer to the Sea more & more pleasant, with a great Number of Houses on each side of the River, like Village or small Towns—with fine elegant Country Seats here & there situated pleasantly in View of the Water. Venice as we saw it at about five Miles distance nearly from ye Shore, at where ye River empties itself into the Sea, has a most striking effect to those who never before saw any thing of the kind. A City rising out of the waves of the Sea, so large & so handsome as Venice is indeed a beautiful object. The small Islands w'h surrounded great part of it, at some Miles distance from each other, have also a very pleasant appearance."

This description so well befits the view we also had of Venice that I would hesitate to add to it. The remarks which Dr. Morgan made about this city are recorded in great detail in his journal. After his visit to Venice, he returned to Padua.

"*Monday, Aug'st ye 5th, 1764.* Set out from Venice ab't 7 o'clock in the Morning; arrived at Padua ab't 4 o'clock in the afternoon—after dining waited on Morgagni with Mr. Powel & was entertained very politely & agreeable—Expense of Boat & Coach hither ab't a Sequin & a half."

Wednesday, August 26, 1970. Florence and I took the train from Padua to Milan. On all our train rides we were fortunate in having either pleasant traveling companions or none at all, in which case we had the compartment to ourselves. Morgan and Powel went through many towns on their way from Padua to Milan, passing through Vicenza and Verona.

"*Friday, Augs't 9th, 1764.* We proceeded 14 Miles, and came to Mantua—this Dukedom is famous for being the birth place of Virgil. . . . After Dinner we proceeded 18 Miles, crossing the Po a few Miles from Town, on a Stage w'h drove over the River by means of a long String of Boats, the front one of w'h is firmly anchored; & by means of a helm to direct the State, & all the rest of the Boats being only fastened to the one at Anchor almost half a Mile from the Stage by ropes at equal distance from one another & from the Stage to w'h the last is also fastened the same way. By this Contrivance no other force is made use of than the strong current of the Stream and the Helm of the Stage, w'h forced out of th'r direction somewhat gradually recover it again—lodg'd at Guastalla 18 miles short of Parma.

"*Saturday, August 10th.* We arrived at Parma about 11 o'clock on the forenoon. People counting th'r hours here, not as commonly in Italy and Rome, but as in England, France & C. The Country about the Town is level, pleasant & well cultivated. The great Number of Ribbons w'h the female Peasants wear on their straw hats is very curious; these look very old & almost worn out on the tattered hats of the old ugly & decrepid.

"*Tuesday, August 13.* Went this Morning to the Hospital of the City, w'ch is large eno' to contain about 300 sick Men & Women. It is well built. Has a large & convenient Laboratory adjoining & Apothecary's Shop. At one End is a fine suit of Rooms up stairs for the officers of the Hospital, on each side of a spacious Entry—very like those in some of the grand Convents we see in Italy. . . . Took leave of my Lord Ossory and Mr. Brumpton this

forenoon, & set out ab't 6 o'clock in the Evening for Milan—but first visited the University w'ch is in no promising condition; there are 4 Profess'rs of Med'ne who read each 2 courses in ye fall & winter ie 6 months for each paid 100 Crowns Salary—nothing from the Scholars.

"Beside a nominal University for Physic, as I might almost call it; there are four others in Italy—if not five-viz., at Bologna and Padua, w'ch are the two best, Florence & Parma; but that of Parma has not more than about 30 Medc'l Stud'ts. I believe we may count a Medical College also at Turin (as well as Milan).

Being introduced to Doct'r Flaminio Torrigiani, Physc'n & Surgeon at Parma & who is Professor of Anatomy in the University. He shewed me one of the finest & whitest human skeletons I ever saw...."

Dr. Morgan proceeded to Milan from Parma.

"Thursday, August 15, 1764.... Put up at the three Kings, the best Inn in Milan....

"Friday, Aug'st 16, A.M. Visited the Cathedral w'ch is a fine large gothic Church faced with Marble & ornamented with above 1,000 Statues great & small below & above, some very good ones. It is far from being finished, altho' the work of it has been continued slowly for some 100 Years past.... After dinner we took a view of the inside of the spacious Cathedral; there are 6 Rows of Columns—3 on each side to support the Roof; they have a light elegant appearance.... We went to the Top of the middle Tower of the Church w'ch they are now at work upon; on one hand we had a view from hence of the Alps, of w'ch our Guide told us that some of the Mountains we saw are far beyond the lake of Geneva in Switzerland, the nearest being about 20 leagues off, others 60 & some he says above 100 leagues, or 300 Miles distant however incredible it may appear to say so. We plainly discern that they are all covered with snow at this hot Season of the Year the middle of August."

Tuesday, August 25, 1970. Upon arriving in Milan, Florence and I headed for the Cathedral. I took pictures of the piazza and the statue of Victor Emmanuel, then went inside the great doors. As we walked slowly around the cathedral, we observed many persons at the side altars and chapels participating in worship services and private devotions, oblivious to the tourists who were milling about.

In his journal of 1764, Dr. Morgan visited a lazaretto at Milan, where they took victims of the plague. This note piqued my curiosity, and I had hoped to visit this place. However I was unable to do so. One of my friends, Dr. Marilyn Hess, a professor in pharmacology at the University of Pennsylvania, who has been doing research during the past year in Milan at the Instituto di Recherche de Farmacologie, took on the chore, at my request, of making a proxy visit for me. She obtained a brochure with a picture of the Lazaretto. It is diffifficult to imagine today what it must have been like in Europe and in America before the days of immunization and antisepsis (Figure 4).

Today the Church of St. Charles at Lazaretto rises in the center of the old hospital for plague-stricken persons outside Milan. It was built in 1576 by the explicit will of St. Carlo Borromeo. Originally it was in Ionic style with an octagonal shape, open on each side, so that every sick man could follow the worship ceremony from the galleries. For three centuries the Chapel followed the events of the Lazaretto whenever epidemics were on the rampage. In 1882, the Parish Church of St. Francesca Romana bought the Chapel, closed the external walls and reinstituted religious services.

Dr. John Morgan attended services at the Cathedral of St. Charles Borromeo on his visit to Milan.

"August 18, 1764: After Mass was over We were admitted to the Chapel under the Pavement of the Church to see the Body of Cardinal Charles Borromeo w'ch lyes in a Chrystal Coffin. The Chapel is amazingly rich, the Ceiling & Sides of Wrought Silver with many curious figures in Relievo.... It is one of the most splendid sights of the sort w'ch can be well imagined. We next went to view the general hospital of Milan.

"The General Hospital of Milan is an astonishingly large & fine Hospital. The first middle Cortile is a large square & grand like the Palace of a King, of very elegant Architecture, having a Piazza all round supported on neat Marble Pillars.... This even now beyond comparison, the finest & largest

Fig. 4. The Church of the Lazaretto, Milan.

hospital I have seen in any Country. There are at present of sick within the House 1,080 Persons, Men & Women, besides some thousand out Patients in the Country. They receive people of all Nations into it; there are few in it who belong to the town. Their Beds are neat & well attended; the nurses & female attendants are all enfans trouvees; they have received above foundlings this last year, whom they send into the Country immediately to proper Nurses to take Care of.... In this Hospital they do not receive foul Patients but once a Year ab't the Month of May, the Number is limited to sixty Men 36 Women, who are shut up during their cure, & dismissed without suffering.

"The Apothecary's Shop & Quantity of Medic'nes large. The Number of Physic'ns in daily attend'ce,

15–10 in the Morning & all 15 in the afternoon, of Surgeons in daily attendance 10, besides 70 young Surgeons or Dressers, who all eat at one Table & sleep in one Room. Some of the Surgeions, the extraordinary ones, live at home; some of the others have Rooms in the House."

As I had been unable to visit this hospital, I asked Dr. Hess to get this information for me also. She reported that the hospital still exists and is in use.

Florence and I did, however, visit the Chapel of the venerated Cardinal S. Carlo, Borromeo, located under the floor of the cathdral. Its beauty was breathtaking. Before leaving Milan, I paid a visit to Le Gallerie de Leonardo Da Vinci nel Museo Nationale della Scienca e della Technica. There are many exhibits of working models of inventions by Da Vinci on the main floor. The displays in this museum are beautifully mounted. In the hall of one of the upper floors his anatomical drawings are shown. Another room was devoted to the history of stringed instruments.

Wednesday, August 26, 1970. Took the Trans-Europe Express from Milan to Lugano, Switzerland, a resort frequented chiefly by Europeans. Our hotel was located next to the Church of the Angels. A highlight of our visit to this town was an exhibition of the frescoes rescued from the recent flood at Florence. I saw more Florentine art here than I saw in Florence itself.

Friday, August 28. I parted company with my traveling companion. She planned to stay in Lugano for a day or so and I had a reservation on the TEE for the next morning. This train took me through the Swiss Lakes region to Zürich. John Morgan had been lavishly entertained by royalty in Milan and Turin. He and Mr. Powel made their way from Milan to Geneva in a voiture and from Geneva to Lyon to Paris by diligence. Beginning in Milan, they were beset with all kinds of troubles, lost baggage, theft, and muddy roads filled with deep ruts due to excessive rains. I, on the other hand, had a delightful day of touring and visiting friends in Zürich, with no travel troubles.

Visit to Edinburgh

Sunday, August 30. 6 A.M. Flew to London. Changed planes for Edinburgh. Arrived late afternoon. After dinner I discovered that famous pipers would be performing in Princess Park. The weather was cool and windy, a refreshing relief from the heat of London. There was a paid area with seats, but I noted, with some amusement, that most of the spectators were sitting outside this area on the grass. I joined them and found myself relaxing; there is a timeless quality about an outdoor summer concert. The foreign tourists were all attending special programs scheduled during the well-known Edinburgh festival.

Monday, August 31. In Edinburgh I first took advantage of the introductions furnished me by Dr. Rogers. My first appointment was with Miss Joan Ferguson, Librarian of the Royal College of Physicians. The impressive building was built in 1844. The rapid increase in the Library and in the number of Fellows made enlargement necessary and consequently in 1864 the College purchased the adjoining building at 8 Queen Street. This house was designed by Robert Adam and was erected in 1770. As the library continued to grow, further extensions had to be made. This library, containing over 20,000 volumes, is the largest medical library in Scotland and one of the three largest in the British Isles.

Miss Ferguson had secured from the Library Historical Collection before my arrival three papers: 1., a petition written by John Morgan dated February 15, 1765, addressed to the President and members of the Royal College of Physicians asking to be admitted as a licentiate of the College "without any previous tryall examination"; 2., an application by John Morgan, also

Fig. 5. Members Reading Room, Royal College of Physicians, Edinburgh.

dated 15. 1765, for permission to obtain a license to practice medicine, addressed to Dr. Robert Whytt, President of the Royal College, and 3., an application by William Shippen. one of the founders of The College of Physicians of Philadelphia in 1787 and President of the College from 1805–8. Also of special interest here were the mortar and pestle belonging to Dr. Cullen.

Miss Ferguson conducted me about the College and we went next-door to the first floor reading rooms, purported to be the finest Adam suite in Edinburgh (Figure 5). These rooms are noteworthy for their finely enriched ceilings, some of the moldings enclosing oil paintings. The Great Hall, furnished in Victorian style, is filled with oil portraits and sculpture. A small statue

of John Hunter with a deer at his feet was of particular interest. Dr. Rogers had mentioned in his *Syllabus of Medical History* that observation of the collateral circulation in antlers of deer led to Dr. Hunter's surgical method of treating aneurysms. (This fact might have explained the reason for the moosehead with tremendous antlers which reposed for many years in the Mütter Museum.)

In the library there was an exhibit celebrating the 300th anniversary of the founding of the Royal Britannic Garden in 1670. In one of the display cases was the first issue of *Flower Garden Displayed,* the oldest botanical periodical of its kind in the world. This serial, first published in 1787 by William Curtis, is still current. Also displayed were *Memoirs of Dr. Sibbald* as well as letters exchanged between Dr. Sibbald and Ben Jonson. Dr. Robert Sibbald was largely responsible for obtaining the Royal Charter for the Royal College of Physicians. He was also the man who started the Library of the Royal College with a gift of 100 volumes. Perhaps the actions of this benefactor inspired Dr. John Morgan to be the first contributor of books in 1788 to the Library of The College of Physicians of Philadelphia. Another similarity between these men was the fact that Dr. Morgan, at a meeting of the College in May 1787, was the one who moved that an application be made to the legislature for a charter.

I observed here as well as at the Royal College of Physicians in London the patterns which have been followed in forming some traditions and aims of The College of Physicians of Philadelphia, such as the compilation of a pharmacopoeia and concern for the care of the sick poor resulting in the establishment of a dispensary.

In *An Account of the College of Physicians of Philadelphia,* the fact is mentioned that Dr. John Morgan had made proposals to Thomas Penn as early as 1767 for the erection of a College of Physicians, twenty years before its founding. The same account also relates that the prototype of the College was the Royal College of Physicians in London, and that credit for the founding of The College of Physicians of Philadelphia was doubtless due to the efforts of more than one man, namely, the 24 founders.

One dissimilarity between the College at Edinburgh and the College at Philadelphia was the regulation of the practice of medicine by the Royal College restricting it to those properly qualified and "who would be licensed by the College to practice within the city of Edinburgh and its suburbs; unlicensed practioners therein would be prosecuted."

My afternoon appointment in Edinburgh was with Miss Dorothy Wardell, at the Royal College of Surgeons. Today the College is a center for surgical education and an important forum for discussion of surgical problems. It is a co-partner with the Royal College of Physicians and the University of Edinburgh in administrative and educational activities of the post-graduate school. Its library and museum are the accepted place for the study of surgical pathology. The membership numbers 6,000 Fellows. The first Honorary Fellowship was bestowed in 1671. Since that time only twenty-one names have been added to the list, men of distinction in medicine and the world of affairs. One of these Honorary Fellows was Lord Lister, and his frock coat reposes in the College Museum. These men are commemorated by portraits on the College walls and by specimens in the museum.

John Morgan, in his *Discourse upon the Institution of Medical Schools in America,* had this to say about Scottish medical men:

"Of what consequence the united efforts of men learned in their profession are, the medical colleges of Edinburgh afford a remarkable instance. Within the space of little more than forty years, the present professorships in Medicine were first formed. A few gentlemen from Scotland, then prosecuting their medical studies at Leyden, concerted a plan,

and undertook, themselves, the important charge of instituting schools for teaching the various branches of Medicine. They met with countenance and support from the patrons of the university, and by the great abilities, assiduity and experience of those gentlemen, and some of their successors, the reputation is raised to such a height ... it already rivals, if not surpasses that of every other school of Physic in Europe. The names of Drummond, Dick, Clerk, Rutherford, Sinclair, Alston, Plummer, Monro, Whytt, Cullen, Hope and Black ... are now known wherever the knowledge of Physic is cultivated; ..."

And so the tradition of medical education has been passed on, from country to country, from school to school and from man to man.

The Library collection of manuscripts included case books and student lecture notes by such teachers as the Monros, William Cullen, Lord Lister and James Syme. The majority of the letters were from Joseph Lister and Sir James Simpson but there were some from Edward Jenner and Robert Knox. These names conjured up in my mind a picture of the memorabilia in the Abbe Custodianship Cabinet in our own College of Physicians in Philadelphia.

Robert Knox, mentioned above, was the first conservator of the Royal College of Surgeon's Museum. During his curatorship, the College acquired the collections of Sir Charles Bell and James Wilson. Knox was a famous and brilliant teacher. It was unfortunate that his name had to become associated with the infamous Burke and Hare.

The museum which Knox created and cared for is now one of the largest collections of surgical pathology in Scotland. Many of the specimens are of unique historic interest. There is a series of oil paintings of war wounds there executed by Sir Charles Bell, a capable artist as well as surgeon, after the Battle of Waterloo. One of the most famous pictures is "Opisthotonos," showing the last stages of tetanus.

Another item of particular interest, especially to me, was the syringe used by Alexander Wood in the first subcutaneous injection of morphine in Britain in 1853. A Wood syringe is part of the syringe collection in the Mütter Museum.

London Sojourn

After my visit to the Royal College of Surgeons, I took a plane to London.

Tuesday, September 1, A.M. Appointment at the Museum of the Wellcome Institute of the History of Medicine with Mr. Colin A. Sizer, Curator of the Wellcome Historical Medical Museum. Mr. Sizer had just completed mounting a special exhibit on cardiology which he and his staff had taken six months to prepare before opening it to the public.

In 1968 the Wellcome Historical Medical Museum became the Wellcome Institute of the History of Medicine under the Wellcome Trust. This Institute exists primarily for research although the museum galleries are open to the public. The Museum of Medical Science, which will be described more fully later on, is under the ownership of the Wellcome Foundation, a pharmaceutical manufacturing and trading company.

The Wellcome Historical Museum owns the world's largest collection of medical historical items. In 1966 Dr. F. N. L. Poynter, Director of the Institute, suggested that the Museum be expanded. Since then it has been completely renovated and has been augmented by four museum galleries with workrooms, a lecture room and office. All the finest and newest techniques have been employed for the proper storage and display of their art and other materials.

In his collection of books and museum specimens Wellcome left a lasting memorial. At the opening ceremony of the museum in 1913 he defined his policy: "In organizing this Museum my purpose has not been simply to bring together a lot of

'curios' for amusement. This Collection is intended to be useful to students and useful to all those engaged in research.... It is my intention that the present collection should be of real educational value to students and others interested in the history of medicine."

The nucleus of the Medical Historical Museum was formed in the last decade of the 19th Century. (The Mütter Museum had already been incorporated in 1863 and had actually been started by some of the Fellows of the College in 1849.) The Wellcome Historical Museum holds spécial collections referring to outstanding practioners and their work. The Jenner Collection is the largest in existence relating to the life and work of the discoverer of vaccination. The Museum also contains extensive material relating to Pasteur, Lister and Ehrlich.

The Wellcome Museum of Medical Science, founded in 1914, is under the ownership of the Wellcome Foundation. Throughout much of his life Sir Henry Wellcome took a keen interest in the social welfare of tropical people, particularly in Africa. (Wellcome was born in the United States and studied at the Philadelphia College of Pharmacy.) He was a personal friend of Stanley, the explorer. In 1901 Wellcome travelled extensively in the Sudan, being the first civilian to visit that country after Kitchener's expedition. In 1902 Henry Wellcome established research laboratories in Khartoum under the direction of Sir Andrew Balfour in order to assist the backward communities in sanitation and health facilities. In 1912 this enterprise, fully developed with a staff of eleven medical scientists, was given to the Sudanese government. This included a museum which Balfour had built up from material collected as a by-product of his team's many investigations.

In the following year, Balfour returned to London to direct the Wellcome Bureau of Scientific Research which Sir Henry founded in 1913. Balfour proposed the establishment of a graphic Museum of Tropical Medicine and Hygiene. The subject lent itself particularly to modern methods of demonstration as the early collections consisted largely of zoological material, ranging from large mammals to insects, of importance as reservoirs and vectors of communicable diseases. During the 1930s the Wellcome Museum of Medical Science became a center not only for postgraduate study of tropical diseases but also for the undergraduate teaching of medicine in general.

In the 1950s the concept of tropical diseases was changing and being enriched by discoveries in genetics, bacteriology, endocrine diseases and cancer. Later in the 1950s much was done to meet the changing emphasis and to teach, not tropical medicine, but the practice of medicine in the tropics. Through the development of color photography and photomicrography, new acquisitions were integrated and illustrative material was acquired.

John Hunter's original conception of a medical museum as an instrument of research and a platform for personal teaching became seriously obscured by the indiscriminate kleptomania of 19th-Century curatorial practice. (This seemed to be the practice in other museums as well as evidenced by accessions from this period.) Unmerited emphasis was placed upon bizarre and rare specimens. Natural history became separated from the study of man in health and disease.

In the Wellcome Museum of Medical Science, wider principles were involved rather than those which depended upon morbid anatomy. New visual teaching methods were attempted. Labels and legends were made more readable. Specimens were placed at eye level. Different medical subjects are presented in a synoptic method of display. The museum reflects the modern applica-

tion of John Hunter's principle that a medical museum should contain not only human material and should concern itself with man's relationship to other forms of life within a single biological environment.

This Museum has a collection of over 2,500 slides which cover the subjects displayed in the museum. The photograph collection consists of over 12,000 monochrome and 400 colored prints used primarily for illustration in the museum. Pathological specimens are documented by means of folders which contain accession data, clinical and pathological details and photographs of the specimen and photomicrography of its histology.

The visual approach in this museum is ideal for teaching; consequently, the museum is used by as many as 10,000 students a year. Much can be learned by the methods used in this museum. It is a living museum with a purpose.

Before leaving the Wellcome Institute of the History of Medicine, I paid a visit to the five historical pharmacies which are reproduced on the first floor of the building. They were an Arab pharmacy, a Hispano-Mauresque pharmacy circa 1790, an Italian pharmacy of the 17th Century, an English pharmacy circa 1680, and John Bell's London pharmacy circa 1820. These were fascinating to study and they presented an interesting contrast to present-day pharmacies.

At one o'clock I had a luncheon engagement with Mr. John Davenport, a member of the library staff at the Royal College of Physicians, Regents Park. The College is the oldest English medical society or institution. It was founded in 1518 by a charter of King Henry VIII. A continuing function was imposed on the College a century after its founding when it was made responsible for preparing the London *Pharmacopoeia.*

From an early date, the College tried to control the quality of medical literature. In the late 18th Century it published its first volume of *Medical Transactions;* the last volumes came out in 1820. Another function, celebrated in its time, was the dispensary for the poor which kept its doors open in spite of opposition from 1696 to 1725. Free medical treatment was provided by physicians at their own expense for many thousands of patients. The constitution of the Royal College of Physicians resembled those of the guilds in which the economic life of the times was organized, but the College was never one of the City companies. In its manners and customs the College conformed to the academic section of society. For its time, it was a rare type of professional body.

The Royal College of Physicians has never taken any direct part in the instruction of those who are to become physicians. In the middle of the 16th Century, it began to provide anatomical demonstrations for the London practioners. From that beginning there grew a great work of postgraduate teachers. The greatest of all the Fellows of the College, William Harvey, gave his best in this capacity.

The Royal College of Physicians has had a number of homes, the first three in the City of London, close to St. Paul's Cathedral. The first was the house of Linacre himself, who gave it. Harvey lectured in the anatomical theatre of the second building, which was destroyed by the Fire of London. Its third home in Warwick Lane was associated with Richard Mead and his gold-headed cane. This cane now is exhibited in a special glass case. The present home of the College at 11 St. Andrew's Place is a handsome new building with built-in facilities for storage of their fine collection of oil portraits. Mr. Davenport took me behind the scenes to look at these facilities. To the general public in Britain the College has been best known as an examining body. Through its long history several of its functions have been assigned to newly-created specialized bodies with paid staffs to do work which the Fellows

had previously done voluntarily. The tradition of the College has remained with a reserve of authority which has enabled it up to this time to intervene decisively in great medical questions.

The acquisition of the library of Lord Dorchester, together with the books saved from the fire which were in Mr. Guy's Museum, the College Annals and legal documents formed the beginning of the present library. The Dorchester Library comprises over 3,000 volumes and includes many subjects including medicine. Mr. Davenport kindly showed me some of their rare treasures in the vault. I was pleased to see the latest issue of the *Transactions & Studies of The College of Physicians of Philadelphia* on one of the periodical racks in the reading room of the library.

Wednesday, September 2, 1970. The high point of my medical journey in Great Britain was a visit to the Royal College of Surgeons in Lincon's Inn Fields. I had the great privilege to be personally escorted by Miss Jessie Dobson, Curator of the Hunterian Museum, a woman known and respected in medical circles all over the world. The goal which I had earlier set for myself, to one day visit this museum, had actually been achieved. It was interesting to observe in which ways the Mütter Museum was patterned after its counterpart, the Hunterian Museum.

It was here that I began to realize how far museum collections can go beyond their original basic purpose, as pointed so well in the history of the Wellcome Institute. John Hunter began to build a museum of comparative anatomy in 1763. (This was the year that John Morgan became Dr. Morgan at Edinburgh and began his journey on the continent.) The Hunterian Museum today has faithfully kept to the purpose of its founder. The nucleus of Hunter's collection was formed by material which he had brought back from Portugal after service as an army surgeon in the Seven Years' War. His museum differed from others in existence in the latter part of the 18th Century in that it was not merely a collection of exhibits, but an illustration of his theories, and in particular, of the constant adaptation in living things of structure to function. It was, in fact, John Hunter's unwritten book. The preparations were so arranged that the story was graphically presented as one's eyes traveled from shelf to shelf. For example, structures, either in the vegetable or animal kingdom, that performed the same function, were brought together.

The Mütter Museum has the skeleton of an unidentified giant from Kentucky measuring 7 feet 6 inches. One of the main attractions in the Hunterian Museum is the skeleton of Charles, the Scottish Giant, measuring 7 feet 7½ inches. The famous portrait of John Hunter shows the feet of this skeleton in the upper right hand corner. A copy of this painting hangs on the south wall of the staircase in the Upper Hall in the College in Philadelphia. John Hunter divided the part of the museum devoted to normal structures into two groups: 1., preparations showing adaptations and concerned with the individual in its everyday life and 2., those for insuring the continuity of the race.

Miss Dobson and her staff have done a perfect curatorial job, in my opinion, of carrying out the ideals of John Hunter and of maintaining his specimens. The well-preserved and displayed exhibits were, for me as a curator, a joy to behold. Life was shown here in its simplicity and its complexity. Seeing this museum and the others which I visited on my trip helped me to visualize what can be accomplished if a museum has a definite purpose.

After a stormy passage by packet boat from Calais to Dover, Dr. John Morgan returned to London on October 29, 1764. Because of stormy seas at this season of the year, he postponed sailing home until the spring of 1765, using the winter in

London to further his plans for the contemplated medical school.

Friday, September 4, 1970. I arrived home safely one day before the high-jacking of two commercial planes. While waiting in the London airport I could sense a feeling of unrest, and all the flights were delayed the day I came back to Philadelphia. I was glad to be home and happy too that Dr. Morgan had kept a journal of his trip which I could follow, thus adding interest and meaning to my own journey.

ACKNOWLEDGMENTS

My thanks go to my husband, and to my neighbor, Mrs. Mildred Greensfelder, Pediatric Instructor, Thomas Jefferson School of Nursing, for helping me in the writing, to the College Library Staff for reference and research, to Dr. Rogers for his editing and encouragement, to Miss Sucha Ku, typist, who patiently assisted me.

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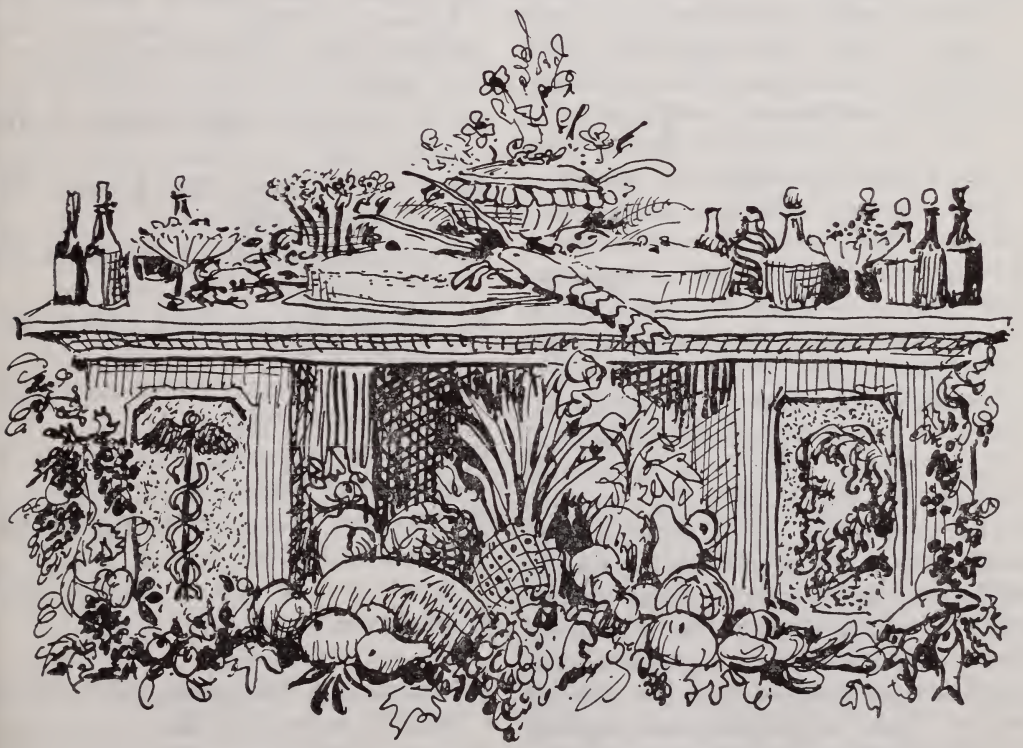
The Medical Club,
or
The Club of Nineteen

One Hundred Years of Continuous Existence
1867–1967



Published by the *Transactions & Studies of*
The College of Physicians of Philadelphia

1867–1911

By JAMES TYSON, M.D.

Read to the Club at Dr. Cheston's Dinner at the Aldine Hotel, April 11, 1911

The actual founder of the Medical Club was undoubtedly Dr. George Pepper, who proposed also the name, "The Club of Nineteen," it having been his intention to limit the number to this figure.

The precise date of the birth of the Club is not known, though it is reasonably certain that it was formed early in 1867. The writer was assisting Dr. Francis Gurney Smith, then Professor of Physiology in the University, and he remembers well his friend, H. C. Wood, coming into the private room of Professor Smith one afternoon during the lecture term, which then extended from October 1st to March 1st, and saying, "Tyson, have you heard any talk of a social medical club forming?" "Yes," I replied, since the matter had been brought to my attention. The survivors of the original enrollment do not agree as to the time and place of the first meeting. Murray Cheston, the eighth on the list of original members, says that William Pepper, then living at 1215 Walnut Street, gave the first "'Club" early in September 1867. Horace Williams, the ninth of the original roll, thinks that George Pepper was the first to give a "Club," but he does not remember the place or date. The first "Club" I personally recall was that of William Pepper, alluded to by Murray Cheston. The approximate date is easily set (1st) because the rules provided a recess during July and August and (2nd) we had watermelon for dessert, an event also recalled by Dr. J. Ewing Mears, a guest. Hence, it must have been September. I feel pretty certain, however, that this was not the first "Club," as it would make too long an interval between the organization in the winter of 1866–67 and the date of the first meeting. It is not unlikely, as Dr. Williams suggests, that George Pepper, who immediately preceded his brother William on the list, gave the first "Club," but there may have been others, as George Pepper was the fifth on the list and the "Clubs" were given in the order named on the card unless by voluntary exchange. There was ample time for Wood, Tyson, Hare, Maury and George Pepper to have had a "Club" at intervals of two weeks before July 1867.

The first enrollment of members was as follows:

Dr. H. C. Wood, 114 N. 12th St. Resigned 1909. Died January 3, 1920.

Dr. James Tyson, 332 S. 15th St. Died February 21, 1919.

Dr. H. B. Hare, 229 S. 6th St. Died March 21, 1878.

Dr. F. F. Maury, 1005 Walnut St. Died June 4, 1879.

Dr. George Pepper, 1737 Pine St. Died September 14, 1872.

Dr. William Pepper, 1215 Walnut St. Died July 28, 1898.

Dr. Edward Rhoads, 210 S. 12th St. Died January 15, 1871.

Dr. D. M. Cheston, 1428 Chestnut St. Died December 23, 1919.

Dr. Horace Williams, 1711 Pine St. Resigned 1905. Died June 12, 1918.

Dr. Harrison Allen, 225 N. 13th St.. Died November 14, 1897.

These may be said to be the strictly original members.

The next elected were:

Dr. Richard A. Cleemann, 340 S. 21st St. Died November 19, 1912.

Dr. Samuel W. Gross, 201-1/2 S. 11th St Died April 16, 1889.

A card containing the ten names and another containing twelve are extant.

Subsequent additions were, in the order of election, as follows:

Dr. Herbert Norris, 313 S. 18th St. Resigned 1903. Died Aug. 6, 1912.

Dr. Wm. F. Norris, S.E. Cor. 16th & Locust Sts. Died November 19, 1901.

Dr. William Goodell, Preston Retreat. Died October 27, 1894.

Dr. Charles T. Hunter, 1905 Walnut St. Died April 27, 1884.

Dr. Wm. F. Jenks, 1620 Locust St. Died October 31, 1881.

Dr. Wharton Sinkler, 1534 Pine St. Died March 16, 1910.

Dr. Louis Starr, 1818 S. Rittenhouse Square. Resigned 1885. Died September 12, 1925.

Dr. William Osler. Elected 1884. Moved to Baltimore in 1889; to Oxford, England, in 1905. Died December 29, 1919.

Dr. George C. Harlan, 1515 Walnut St. Died September 25, 1909.

Dr. Frederick P. Henry, 1635 Locust St. Elected 1890. Died May 24, 1919.

Dr. Henry R. Wharton, 1725 Spruce St. Elected 1892. Died Dec. 3, 1925.

Dr. S. S. Stryker, N.E.Cor. Walnut & 39th Sts. Elected 1904. Died October 25, 1929.

Dr. John G. Clark, 2017 Walnut St. Elected 1907. Died May 4, 1927.

Dr. James C. Wilson, 1509 Walnut St. Elected 1908. Elected Honorary Member 1931. Died October 28, 1934.

Dr. Richard H. Harte, 1503 Spruce St. Elected 1909. Died Nov. 14, 1925.

Dr. George W. Norris, 1530 Locust St. Elected 1910.

Dr. Francis W. Sinkler, 1606 Walnut St. Elected 1910.

Dr. William Pepper, 3rd, 1811 Spruce St. Elected 1910.

Dr. John H. Gibbon, 1608 Spruce St. Elected April 8, 1913.

Dr. Francis R. Packard, 304 S. 19th St. Elected November 18, 1919.

Dr. Norris W. Vaux, Chateau Crillon. Elected January 13, 1920.

Dr. Arthur Newlin, 1804 Pine St. Elected February 15, 1921. Died April 13, 1941.

Dr. Charles F. Mitchell, 2003 Pine St. Elected January 26, 1926.

Dr. James P. Hutchinson, Media, Pa. Elected January 26, 1926.

Dr. Charles C. Norris, "Fairhill," Bryn Mawr, Pa. Elected November 15, 1927.

Dr. Williams B. Cadwalader, Villa Nova, Pa. Elected November 12, 1929.

Dr. O. H. Perry Pepper, "Ithanlea," Ithan, Pa. Elected April 21, 1931.

Dr. Alexander Randall, 1323 Medical Arts Building. Elected October 13, 1942.

Dr. James W. Wister, 5430 Germantown Ave. Elected October 12, 1943.

Rules

I. The meetings of the Club are held at the residences of the different members in rotation, on alternate Tuesday evenings, at 8:15 o'clock, excepting during the months of July and August.

II. The number of members shall be limited to 19, and no one shall be elected but by a unanimous vote.

III. The entertainment shall be absolutely limited to coffee, chocolate or ale, and biscuit, with either tongue or ham; apples and nuts may be added at the option of the host.

IV. The host shall have the privilege of inviting five gentlemen to the meeting; and any member may have friends included in this number by application to the host.

A later card omitted a statement of the hour of assembling and ordered the entertainment to be served punctually at 9:30. Rule IV was altered to read, "The host shall have the privilege of inviting five gentlemen to the meeting; and any member may have a friend invited by applying to the host."

An attempt was made to substitute the supper by a dinner in 1884, but after two

or three dinners the supper was resumed chiefly because of the objection of Dr. Williams. After his retirement from the Club in 1905, the dinner was resumed and with a more elaborate menu. As the men grew older, their fondness for beer grew less and desire to substitute whiskey grew more. Some said that beer produced gout and lumbago, and gradually it disappeared from the table, while a still wine has also been introduced now and then in addition to the spirit of corn.

The first break in the Club was by the death of EDWARD RHOADS. Dr. Rhoads had suffered from rheumatic fever before he studied medicine, the last attack being in the winter of 1859–60. He was graduated from Haverford College in 1859 and chose a year for reading and further study before beginning the study of medicine; but almost the whole year was spent in invalidism and although he seemed to recover, it was evident from subsequent events that he was left with a crippled heart. He was my classmate in the medical school and we graduated in 1863. It was not until 1870 that his heart disease appeared in an aggravated form. In the autumn of this year, he suffered greatly with the usual trying symptoms of heart disease, including general anasarca and died January 15, 1871. Dr. Rhoads was a noble character. Dignified and scholarly, gentle, yet courageous, a consistent Christian, he seemed to me nearest perfect of all men I knew. Although he had the courage of his opinions and was not afraid to speak them, I do not believe he had an enemy.

The next to leave us was GEORGE PEPPER, who died of pulmonary consumption September 14, 1872, after a year's illness. Tall and slender, but easy and graceful, he was always neatly dressed and commonly carried a cane. He appeared what he always was, a thorough gentleman and was a great favorite. He adopted obstetrics as a specialty and was already very successful when death summoned him.

HORACE BINNEY HARE died of consumption, March 31, 1879. He was delicate even while a student and never became robust. Chemistry was his specialty and had he been spared, he would doubtless have succeeded to the Chair of Chemistry in the University. In the construction of the then new University Hospital, finished in its first stage in 1874, a thoroughly up-to-date chemical laboratory was fitted for him. He and I formed a partnership and conducted the first clinical laboratory in which were made microscopic and chemical analyses for physicians and for which a fee was charged. He struggled valiantly for his life, spending much of the last two or three years of it at sea for the sake of the continuous ozonic effect and the purity of the sea air which seemed to keep him alive. He died on his yacht, the Resolute, just as she was dropping anchor in the harbor of St. Thomas, W.I.

FRANK F. MAURY also died of consumption, June 4, 1879. He was a brilliant but not highly educated man, born in Kentucky, and had attained at the time of his death considerable eminence as a surgeon and genito-urinary specialist. He began his surgical career as the assistant of Professor Samuel D. Gross, the elder Gross, as he was then called, Professor of Surgery at the Jefferson Medical College. Dr. Maury and Dr. Louis A. Duhring became joint editors of a journal of skin diseases, the first published in this Country, which had, however, a brief existence. Dr. Maury was a good talker and impressive teacher, but no writer. He always drove a fine equipage and his brougham and pair of handsome small dark chestnut horses attracted much attention. (According to Murray Cheston, these horses were called by his colleagues "Cubebs and Copaiba"). He was the most successful of the members of our Club at the time of its organization.

WILLIAM F. JENKS died October 31, 1881, also of consumption. He was a graduate of Harvard College, but studied med-

icine in the University of Pennsylvania. He was a nephew of the late Rev. Dr. Wm. H. Furness, for many years the pastor of the first Unitarian Church in Philadelphia, and a cousin of Dr. Horace Howard Furness, Shakespearean scholar and commentator. He possessed the grace and charming manner of this cultured family. He, too, sought to make a specialty of obstetrics and diseases of women, but, like George Pepper, fell a victim of consumption and died after a brave fight extending over several years, during which he visited every clime reputed for its curative effects on this disease.

CHARLES T. HUNTER died April 27, 1884, with meningeal symptoms succeeding an infected wound with which he was ill many months and suffered greatly. He was a surgeon and for many years the assistant of Professor Agnew. He was Demonstrator of Surgery and later, also, of Anatomy in the University. He was a quiet, earnest, and conscientious worker, a sound and capable surgeon.

SAM GROSS died of pneumonia, April 16, 1889, after a hard struggle with the disease. He was a good surgeon, but overshadowed by his distinguished father, Professor Samuel D. Gross. He was an excellent and impressive teacher of surgery and took the ground that a teacher should never hesitatingly accept an opinion; that he must believe it or reject it. He was professor of Principles and Practice of Surgery in the Jefferson Medical College at the time of his death, in the prime of life. He had written a useful book on cancer of the breast and revised another by his father on genito-urinary diseases.

WILLIAM GOODELL died October 27, 1894, of Bright's Disease. He came among us at middle life, having practiced medicine in Constantinople for a number of years after graduating at the Jefferson Medical College. He was the first Professor of Gynecology in the University of Pennsylvania, and became one of the leaders of this branch in America. He was an admirable writer; indeed, it may be said that he at least started his fame largely by an able review of Byford's book on the diseases of women, a most brilliant essay which was read the world over.

HARRISON ALLEN died November 14, 1897. He was the philosopher, the dreamer and literary member of our Club. A graduate of the Philadelphia High School, he became early interested in natural history, and studied medicine as the pupil of Professor Leidy. He was devoted to anatomy, especially comparative anatomy, and was the first Professor of Comparative Anatomy in the George B. Wood Foundation.

His book on Anatomy published *in quarto fasciculi* issued at various dates is one of the classics of medicine. Naturally, he became a surgeon and was early elected one of the surgeons of the Philadelphia Hospital. He was the very opposite type of man from Dr. Maury, who was also a surgeon on the Blockley staff. The difference between these men is strikingly shown by the following incident: Dr. Allen and Dr. Maury were in consultation over a surgical case. Dr. Allen was deeply interested in the case, and was discussing it from the standpoint of embryology and comparative pathology. Dr. Maury listened for a short time and finally said, "That is all very nice, Allen, but what shall we do for the patient?"

Dr. Allen approached nearer to Dr. Leidy in his scientific tastes and philosophic, meditative turn of mind, but, while he was a man of broader literary culture, he was not so great a man as Leidy.

Dr. Allen, as might be supposed, was not very successful as a surgeon, although he had opportunities, among which was his position as surgeon in the regular army during the Civil War. He was chosen Professor of Physiology in the University in 1878 and held the place for a few years. About this time he left the broader field of general surgery for that of the nose and throat. Here his thorough knowledge of

anatomy served him to great advantage and he soon became successful, acquiring a large and lucrative practice from which he was, however, cut off too soon, by angina pectoris, previous to which his appendix was removed because of appendicitis.

WILLIAM PEPPER was the most brilliant and the most distinguished of our number, too fresh in our memory to need a lengthy sketch. A leader in his class at college, he continued to lead while he lived. Professor of Medicine in the University and Provost of the same, he suggested the prolongation of the course to three years and then to four full academic years, and he conceived and was the foremost in giving and raising money toward building the University Hospital, the Laboratories of Chemistry and Anatomy and Hygiene, the University Library and the Pepper Clinical Laboratory in memory of his father and brother. He originated the Pennsylvania School of Industrial Art, the Philadelphia Commercial Museum, the Museum of Science and Art, and the Free Library of Philadelphia. He died July 28, 1898, of angina pectoris, in California, at the home of his friend, Mrs. Phoebe A. Hearst.

WILLIAM F. NORRIS followed Dr. Pepper in little more than three years on November 19, 1901. He was one of the three pioneers in ophthalmology in Philadelphia, Ezra Dyer and William Thomson completing the trio. He was the first Professor of Ophthalmology in the University of Pennsylvania, a most careful and painstaking student of diseases of the eye and most successful in their treatment. He was quiet and undemonstrative but forceful in character, a good friend, liberal patron and hospitable host.

GEORGE C. HARLAN died September 25, 1909, from the effects of an accident which is still fresh in our memories. Dr. Harlan was one of the most loyal members of the Club and was very rarely absent from our dinners. My earliest recollection of him lies in an incident picturesque enough to be narrated. In June 1862, the Union Army lay before Richmond and a great battle was momentarily expected. Every preparation was being made to transport the wounded to northern cities. I was then a student and medical cadet in the U.S. Army Hospital at Broad and Cherry Streets. A large hospital transport, the LOUISIANA, lay in the Delaware, loading with food and stores previously to leaving for White House Landing on the Pamunkey River, a branch of the James. My friend and classmate, Mr. E. M. Corson, also a medical cadet, and I applied for permission to go down on the boat. It was granted, and in a couple of days, after a short stop at Fort Monroe, we ascended to our destination and lay out in the river, the air heavy with the fragrance of magnolia lining its banks, awaiting the battle. But the battle did not come off, and as we had nothing to do, we occupied the time in loitering about camp and visiting neighboring places of interest, having an ambulance at our disposal. One of these places was an interesting old church into which we wandered. While there, Dr. Harlan, who was a surgeon to a cavalry regiment, came into the church to which he had ridden from camp. I had known Dr. Harlan slightly at home, so I recognized him. After a half hour's pleasant chat we parted. This was the beginning of a long friendship terminated only by his death. After his return to civil life, he took up ophthalmology as a specialty and soon acquired a large practice, becoming the trusted adviser of many good families.

WHARTON SINKLER died March 16, 1910, of heart disease, of which he had been a victim for several years without serious inconvenience until the last attack which was attended by the usual discomfort of obstructed circulation and lost compensation. Genial, generous, warm-hearted and hospitable, the "Clubs" at his house were always enjoyed. His baked Virginia hams were unequaled. For many years he gave

an additional "'Club" on New Year's Eve, when he invited us all with others to welcome the New Year in. Early devoting himself to nervous diseases, he became eminent in this branch. He was a manager of the Episcopal Hospital and a Trustee of the University of Pennsylvania at his death.

Two of the original members of the Club who withdrew several years ago (one can hardly say resigned, for no formal resignations were ever received) are living and in fair health—Dr. Horatio C. Wood, Sr., and Dr. Horace Williams. Dr. Wood was the first named on the original list and dropped out about ten years ago after an illness which shattered his health.

(Note by Francis R. Packard:

HORATIO C. WOOD was one of the most outstanding personalities in the medical profession in Philadelphia. At various times he occupied the Chair of Botany in the Auxiliary Faculty of Medicine, the Professorship of Neurology and that of Therapeutics in the Medical Department of the University of Pennsylvania. His *Textbook of Therapeutics* went through many editions. A man of superabundant energy, he was a great teacher and was held in affectionate remembrance by hosts of former students. He was largely instrumental in bringing Osler from Canada to fill the Chair of Clinical Medicine in the University of Pennylvania.)

DR. HORACE WILLIAMS, the ninth of the original roll, retired in 1905, also after an attack of severe illness which withdrew him for a year from professional life. He was seemingly quite recovered (1911), but is indisposed to rejoin us although we would much like to have him. We miss him the more because he was for many years, before his retirement, the Dean, or Director, not by age, but by selection, who would remind us that our turns had come, and to him we went for information. Since Dr. Williams withdrew, Dr. Wharton Sinkler served until his death in 1910, and following that, Dr. Wharton has performed these duties to our entire satisfaction.

HERBERT NORRIS, although not an original member, was early chosen. He was for a time in bad health and withdrew even before Dr. Williams. He married a second time and he and his wife reside in Italy much of the time, making flying trips to this Country about once a year (1911).

(Note by Dr. George W. Norris:

"Dr. Herbert Norris is firmly fixed among my boyhood memories as one of the (to me) most attractive of my Father's friends. I used to write him puerile letters which he always answered promptly and with apparent enthusiasm. He was tall, slender, wore a light brown beard and was an animated conversationalist. He lived on the East side of Eighteenth Street, south of Spruce. Later on, he developed some kind of splenomegaly, retired from practice and lived for a number of years at Taormina in Sicily. I remember hearing that he was very active in caring for the injured at the time of the earthquake at nearby Messina. I do not know whether he had any hospital connections nor where he came from. He was not related to either of the Philadelphia Norris families.")

DR. LOUIS STARR resigned from the Club in 1885. He was one of the most distinguished paediatricians of his time. He was the author of a number of books on the diseases of children, several of which, especially his *Hygiene of the Nursery*, achieved great popularity. In 1894, he edited the *American Textbook of Diseases of Children* which was for many years a standard work. For many years he was physician to the Children's Hospital and he had a very large private practice. In 1911 he developed serious heart disease and retired from practice, passing most of the subsequent years of his life abroad. His younger son, Dillwyn Parrish Starr, who was a lieutenant in the Coldstream Guards, met death in action in 1918. Following this bereavement, Dr. Starr began to draw and

later to etch and he achieved great skill in the latter art. In 1921 his only remaining son died, and Dr. Starr left England to pass the remaining years of his life in France, where he died at Dinard, September 12, 1925.

DR. WILLIAM OSLER was chosen a member of the Club soon after his election to the Chair of Clinical Medicine in the University in 1884. He withdrew in 1889 on his removal to Baltimore when elected to the Chair of Medicine in Johns Hopkins University, whence in 1904 he was appointed Regius Professor of Medicine, Oxford University, England, where he now resides (1911).

The following very typical note from Dr. Osler to Dr. Wharton was written during the summer of this year (1911):

"From the Regius Professor of Medicine, Oxford.

April 5th, 1911

Dear Wharton,

It was very nice to get the list of the old Club men but it is awfully sad to see the number of stars opposite the names.

Affectionate greetings to the members at the next meeting of the Club.

Sincerely yours,
(signed) Wm. Osler."

1911–1941

By FRANCIS R. PACKARD, M.D.

Read in part to the Club at Dr. Gibbon's Dinner, December 20, 1927

At Dr. D. Murray Cheston's dinner at the Aldine Hotel on April 11, 1911, Dr. James Tyson read his most interesting account of the Medical Club, or Club of Nineteen. After the lapse of nearly sixteen years, it has been thought well to compile a brief resumé of the history of the Club during the intervening period.

The first break in its ranks subsequent to Dr. Tyson's record, was the death of DR. RICHARD A. CLEEMANN, which occurred on November 19, 1912. Dr. Cleemann's genial personality is recalled by all of us. He took a great interest in the affairs of The College of Physicians, serving as its Secretary from 1879 to 1885, and for many years served as its representative on the State Quarantine Board. For several years he was Secretary of the American Philosophical Society. He and his twin brother, Ludovic, were so much alike that they were frequently mistaken for one another. Some humorous instances of this as well as a full account of his various activities may be read in his Memoir, by our fellow Club member, Dr. Frederick P. Henry, which was published in the *Transactions & Studies of The College of Physicians,* 1914, Vol. XXXVI.

In 1919 the Club suffered three great losses.

DR. JAMES TYSON died on February 21, 1919. For many years a teacher and finally Professor of Medicine at the University of Pennsylvania, many of us younger men looked up to him with respect as well as affection. He was one of the physicians to the Pennsylvania Hospital, and from 1907 until 1910 was President of The College of Physicians. In every relation of life he was loved and esteemed. His friend and colleague, Dr. Fussell, wrote a most sympathetic memoir of Dr. Tyson which is contained in the *Transactions & Studies of The College of Physicians,* 1920, Vol. XXXII.

On May 24, 1919, DR. FREDERICK P. HENRY passed away. For many years Honorary Librarian of The College of Physicians, Dr. Henry did much to build up the splendid library which is the pride of that body. One of the most modest and retiring of men, Dr. Henry was also one of the most social. His quiet, rich humor was re-

vealed to many on the occasion of the opening of the present building of the College in 1909. The twinkle in his eye when he told how our books had driven us out of our old quarters by their incessant accumulation was delightful.

The end of the year was marked by the passing of D. MURRAY CHESTON on December 22, 1919, "a fellow of infinite jest, of most excellent fancy . . . where be your . . . flashes of merriment that were wont to set the table in a roar." Dr. Cheston, after having for many years enjoyed a very large practice, retired into private life for some years before his death. A man of great professional ability, his retirement was deeply regretted by a very large clientele. Of most social disposition, with an inexhaustible fund of stories, his loss has been severely felt by the Club.

It should be noted that in the same month, December 29, 1919, SIR WILLIAM OSLER died at his home in Oxford, England. During his residence in Philadelphia, he had been elected a member of the Club. He had withdrawn on his removal to Baltimore in 1889.

Until 1925 the Club pursued its tranquil existence undisturbed by the dread Scytheman, but in that year it sustained grievous losses.

DR. RICHARD H. HARTE died on November 14, 1925. His Memoir by our fellow-member, Dr. George W. Norris, published in the *Transactions & Studies of the College of Physicians,* 1926, Vol. XLVIII, was written with deep feeling and knowledge of the man. It is useless to attempt any summary of his active and useful life before you. Its remembrance is too recent. His portrait hangs on the walls of The College of Physicians, with his robe of office as President of that body, which he loved and served so well, worn over his uniform as a Colonel in the United States Army, in which capacity he had made such an honorable record. His professional ability and wonderful personality brought him many honors which he wore with notable modesty.

A few weeks after Dr. Harte's death, DR. HENRY R. WHARTON followed him on December 3, 1925. Dr. Wharton was for many years one of the most prominent surgeons in Philadelphia. He was surgeon to the Children's and the Presbyterian Hospitals. As a tracheotomist, he was unexcelled. He was a great sportsman and many of us will recall the last dinner which he gave to the Club. It was at the Philadelphia Club and the chief dish was duck, the result of his prowess in the marshes. Dr. Wharton always preferred giving his dinners in the autumn in order that he might provide some toothsome game. He succeeded Dr. Wharton Sinkler as Secretary of the Club in 1910. In 1917, Dr. Wharton was taken ill and from that time until his death, he was an invalid, but he continued to serve as Secretary until 1922 when he turned over the duties to Dr. Francis Sinkler. He bore his sufferings with great fortitude and was always glad to greet the members of the Club who visited him from time to time.

On May 4, 1927, JOHN G. CLARK died after a long illness which must have involved much mental suffering as well as physical discomfort. John Hunter's disciples and friends used to speak of him as "the dear man," and the same term of affection was frequently applied by William Osler to those whom he loved. It was particularly applicable to Clark. A more kindly-natured, lovable man never walked shoe leather. He made his mark at an early age, but he died much too soon to have accomplished all of which he was capable.

On October 25, 1929, the Club sustained an irreparable loss in the death of its oldest member, DR. SAMUEL S. STRYKER. Belonging to a family which had long distinguished itself in the history of New Jersey, Dr. Stryker was born at Trenton, May 4, 1842. He attended Lawrenceville School and later graduated from Princeton in 1863 with the Degree of A.B. In 1866,

he received his Medical Degree from the University of Pennsylvania and in the same year, got the Degree of M.A. from Princeton. The rest of his life was passed in the practice of medicine in Philadelphia. Dr. Stryker was a man of striking presence and the most delightful personality. To a keen mind and bright wit, he combined a gentleness of disposition which won him the love of all with whom he came in contact. He acquired a very large practice and held for his patients the position of guide, philosopher and friend. His rare knowledge of human nature and genuine love for his fellowman assured a proper return for the confidence his patients felt in him. By his large circle of friends he was held in the highest esteem and affection. In the small circle of our Club, he was loved and looked up to as the Nestor of our group. He will live in our memories as one of the noblest types of our profession.

On October 28, 1934, the Club lost, by death, its Senior, and one of its most distinguished members, DR. JAMES CORNELIUS WILSON, who was elected to membership in 1908. Owing to ill-health, Dr. Wilson had withdrawn from active participation in the activities of the Club in 1931. There is little occasion to recall to our minds his great professional achievements. Besides holding the Chair of Medicine at Jefferson Medical College, he was Physician-in-Chief at the German (now Lankenau) Hospital and Physician to the Pennsylvania Hospital, and Consulting Physician to many other medical institutions. He contributed much to periodical medical literature and was the author of several notable textbooks and monographs. Few medical men have been honored by their professional brethren by election to as many positions of honor as Dr. Wilson. He was, at one time or another, President of The College of Physicians of Philadelphia, the Philadelphia County Medical Society, the American Climatological Society, American Therapeutic Association. But it is not for his professional distinction that our Club will long remember Dr. Wilson. We will recall the kindly, cultivated gentleman and scholar who was such a delightful companion and friend of all of us, his juniors, and we will remember the cheerful intercourse between him and his last co-eval in the Club, Dr. Samuel S. Stryker, and miss the joyful greetings with which "Sammy" and "Jimmy" used to hail one another at our mensual gatherings.

On Easter Sunday, April 13, 1941, we lost our good companion and much-loved friend, ARTHUR NEWLIN. On the Tuesday previous, the Club had dined at his house. Though for some time he had been really ill with circulatory disorder, he insisted on our dining with him, though Mrs. Newlin felt he was too ill. To us he was, as usual, a most delightful host and after dinner, he expressed to Mrs. Newlin his pleasure at having had us with him. On Easter Saturday, he saw patients as usual. Dr. Mitchell saw a case in consultation with him that afternoon, and, shocked at his condition, tried to persuade him to stay at home and rest. He passed the evening in great discomfort and passed away shortly after midnight.

Arthur Newlin graduated from the Medical Department of the University of Pennsylvania in 1899. After serving his term as resident physician at the Pennsylvania Hospital, 1900–1902, he entered private practice. For many years he was one of the physicians to the dispensary of the Children's Hospital and Assistant Physician at the Orthopedic Hospital. In 1905 he was elected physician to the Out-Patient Department of the Pennsylvania Hospital, and in 1912, was appointed Physician to the Hospital, serving in this capacity until 1933, when he was appointed Consulting Physician.

Dr. Newlin had a most acute intellect, great powers of observation and a very re-

tentive memory. He had read widely in the best literature and though he never talked to display his learning, he could quote most aptly and could recall whence a quotation came with remarkable quickness. He had what our forefathers called a gentle wit, never malicious or ill-timed, but always kindly and to the point, and his delicious humor and great power of mimicry rendered him a most delightfully charming social companion. His forthright honesty never fell into the unfortunate practice of harsh criticisms. Although a man of strong convictions, he never uttered unkind criticisms of the faults or weaknesses of others, or spoke maliciously or with inuendo. He possessed distinct artistic talent and in his later years painted some very charming landscapes, showing real feeling and considerable ability in their execution.

It is sad that a record such as this should be merely a necrology. Let us regard it rather as an effort to express our affectionate remembrance of those who have gone.

1941–1944

By JOHN GIBBON, SR., M.D.

Read to the Club at Dr. Randall's Dinner, December 14, 1943, and at Dr. G. W. Norris' Dinner, February 8, 1944

DR. JAMES P. HUTCHINSON was elected a member of the Club in 1926 and, during the next seventeen years, rarely missed a meeting. He died, as he wished, looking out of his library window over the lovely Crum Creek Valley and the undulating hills beyond covered largely by trees which he had planted. His death on April 8, 1943, in his 75th year, was due to Hodgkins Disease. His last few months were ones of nearly constant suffering. In fact, the last three Club dinners he attended were associated with frequent spasmodic pain of which I am sure he never spoke to any of you. This stoical behaviour characterized his attendance of the meetings of the "Hand-in-Hand" Insurance Company and of the Blind School of Overbrook, of which he was President for many years. His health throughout a most active life had always been exceptionally good. When sorrow or suffering came his way he took them without complaint or self-pity and yet with the pain or hard-luck of others he was most sympathetic.

He graduated at Harvard in 1890 and received his Medical Degree from the University of Pennsylvania in 1893. Throughout his professional life, he was connected with the Pennsylvania Hospital, first as Intern, then as Out-Patient Surgeon, and lastly as Consulting Surgeon. For many years, he was also Surgeon to the Episcopal, the Methodist Episcopal and St. Timothy's Hospitals. During this period, he had an enormous surgical experience and few of his contemporaries exhibited equal judgment and skill in traumatic surgery or were able to parallel his results following prostatectomy. Although he never wrote a surgical paper, he talked well at surgical meetings and his opinions were highly regarded in the American Surgical Association and the Clinical Society of Surgery.

As a military surgeon he won distinction in France during the First World War. In 1915 he went to the American Ambulance with a surgical unit from the University of Pennsylvania for a tour of four months, but remained four years. He became the Chief Surgeon of the American Hospital, where he earned an enviable reputation as a military surgeon and as an administrator. He was retired with the rank of Colonel, and was given the Distinguished Service Medal by our Government, and made a

Chevalier of the Legion of Honor by France. He was also given the Liberty Service Medal by the American Social Science Association and the National Institute of Social Sciences, the Medaille D'Honneur by the French Republic, a war medal by the Union des Femmes de France, and for his service to France (1914 to 1917) a medal by the citizens of Paris.

Jim Hutchinson was a sportsman of the highest type. At Harvard he was stroke of his crew and a member of the football team. He was an excellent horseman and for a number of years, before the War, was President of the Rose Tree Fox Hunting Club. For six or seven years he was Master of Hounds, filling this role after he was seventy, and no one rode straighter.

All who knew him well agree that his outstanding qualities were fairness, good judgment, honesty and frankness. Of himself, his achievements and his honors he never spoke. He was very generous, giving freely to organized charity, but more freely in quiet unknown ways. In his last testament, he named as his residual legatees the Pennsylvania Hospital and the School for the Blind.

I think one can epitomize in a single word Jim Hutchinson's character, and that word is—"straight."

The Last Fence
(Will H. Ogilvie)

When the last fence looms up, I am ready
And I hope when the rails of it crack
There'll be nothing in front but the Master,
The huntsman, the fox, and the pack;
And I hope when fate bids me go under
In this last of my manifold spills,
That we're riding the line of a hill fox
With half a mile start to his hills.

I hope that last fence is a stiff one;
I hope, for the sake of our name,
They may say "If the task was beyond them
They both of them went at it game!"
And when the white girths flash above me,
And darkness comes down on the field,
Let them carry me home on a hurdle
As the Spartan went home on his shield.

And when I am out of the running
Let the good men go on with the pack;
I would not one comrade should falter,
I would not one friend should turn back;
And whether it be on the grass-land,
The hill-side, the heath or the loan,
Let the gallant ones keep going for'ard—
The slow ones can carry me home.

Let them bury me down in the church yard,
But lay my good horse where he fell;
When the ditches are blind in the autumn
Some friend may remember and tell,
While under the thong of the west wind
The day-nettle trembles and stirs;
" 'Twas from here that a horseman undaunted
Went home in his boots and his spurs."

1944–1967

By ALEXANDER RUSH, M.D.

Read to the Club at a 100th Anniversary Dinner, at The Rabbit, October 17, 1967

It appears to have been the intention of the founder, Dr. George Pepper, that the Medical Club, or Club of Nineteen, be a social club. It is not known whether he was aware of the founding of similar organizations in Boston and Roxbury at about the same time. The Dorchester Medical Club, founded July 28, 1866, held its One Hundredth Anniversary Dinner in May of this year. The Roxbury Society for Medical Improvement and the Medical Reading Club first met in May 1866 and thus appears the senior by a few months.

Ample precedents for such dining clubs existed in London at the time of Dr. Edward Jenner (1749–1823) a century before. It has been reported that Jenner was a member of the Medical Convivial Society and its

counterpart, the Convivial Medical Society. It is also a matter of record that Jenner was once threatened with expulsion from one of these Societies for being a bore on the subject of smallpox vaccination!

An interesting anecdote pertaining to these times is related about one of Jenner's contemporaries, Dr. John Fordyce. Fordyce, it appears, was a man of unusual habits. He ate but once a day. At about 4 P.M. he would arrive at his favorite coffee house. As soon as he appeared, the proprietor would initiate the preparation of his dinner, customarily consisting of a pound and a quarter of beef. While waiting for this to be cooked, it was his habit to consume a bottle of sherry with his soup and a half bottle of brandy with his fish. With his meat course, he would drink a large tankard of ale. With his dessert, he frequently finished up the remaining half bottle of brandy. With his cheese, he usually dallied over a bottle of port. These epicurean delights would often occupy him until fairly late in the evening.

One of these evenings he received a message to proceed at once to the bedside of one of his wealthy and influential lady patients. Fearing to disappoint such an important personage, he made his way to her home. He was ushered to her apartments and found her, as was the custom in those days, reclining in a bed that was heavily curtained. Fordyce attempted to take her pulse from an arm which was extended through the folds of the curtains. Only then did he realize the full extent of his intoxication when he encountered great difficulty in counting the beats and then muttered to himself, "Drunk, Be Gad!" Aware of his uselessness in his intoxicated condition, he prescribed a harmless medicine and hurried away. Upon awakening the next morning his remorse knew no bounds. By his unseemly conduct he, no doubt, had lost his most influential and valuable patient. While brooding over his misfortune, a messenger arrived from this same lady bearing a note which read:

"Dear Doctor:

I am greatly indebted to you for your visit at such a late hour last night. I must congratulate you upon your skillful diagnosis. Should it be known that I was indeed intoxicated, the circumstances might cause me considerable embarrassment and distress. To ensure the erasing of the painful memory from your mind, I am enclosing £ 100 note."

To return to our own convivial Medical Club, a unique feature of the organization is that the founding fathers, in their great wisdom, failed to make provision for the election of any officers, such as president, vice president, etc. From the records, it may be deduced that the ninth on the list of original members, Horace Williams, served as "Dean or Director, not by age, but by selection, who would remind us that our turn had come and to him we went for information." He was succeeded in 1905 by Henry Wharton, who performed these duties with the title of Secretary "to the entire satisfaction" of the members until his retirement in 1922. He in turn was followed as Secretary by Francis W. Sinkler who served in this capacity for the next forty years, until May 1952, when he relinquished his responsibilities to the writer. The eldest in duration of membership somewhere along the way acquired the designation Senior or Senior Member. An early accomplishment of the Medical Club is revealed by the habit of Senior Member George Norris, who never failed to quote Dr. Murray Cheston whenever the occasion arose to elect a new member. It was to the effect that the Club had done more to counteract hard feeling among contemporary physicians in Philadelphia than any other influence. It seems that the rivalry between competing physicians became rather bitter at times. The regular congenial meetings of the Club are believed to have served the useful purpose of softening the intensity of the rivalry and keeping relationships on a more friendly basis.

At a dinner given by Dr. John Gibbon, Sr., on December 20, 1927, Dr. Frank Packard read a resumé of the history of the Club

covering the period from 1911 to 1927. This supplemented a previous history by Dr. James Tyson, which extended from its founding to 1911. Further additions were made by Dr. Packard in 1941, covering the loss of Dr. Arthur Newlin in that year. A single memoir of Dr. James Hutchinson following his death, was added by Dr. John Gibbon, Sr., in December 1943. And now almost a quarter of a century has passed since any attempt has been made to bring up to date the records of this congenial association of physicians. This year it has completed one hundred years of continuous existence. It should be noted here that there was a time when some questions arose as to whether the Club should continue. A note made by Francis W. Sinkler, in the minutes for the meeting on February 10, 1948, reads as follows:

"The question of continuing to elect new members to fill vacancies or of allowing the Club to gradually lose its existence from the death of its members was discussed. It was (eventually) agreed that younger men should be elected to fill the existing vacancy and future vacancies, and that the Club should again consider increasing the number of members from 12 to 14."

Beginning with the initial history of Dr. James Tyson, it has been the rather sad custom, briefly, to record, from time to time, losses in the Club membership by death. Since the death of Dr. James Hutchinson, twenty-four years ago, fourteen members have died. No effort will be made to list the many accomplishments of these departed physicians. They may be found in great detail in Memoirs prepared for the Philadelphia College of Physicians and other professional societies. My record will be limited mostly to brief thumb-nail sketches that hopefully will capture some characteristic of personality or behavior.

DR. WILLIAM PEPPER, III, died after a brief illness from a dissecting aneurysm and ruptured aorta at age 73. A graduate of the University of Pennsylvania School of Medicine in 1897, he became Assistant Professor of Pathology in 1907 and Dean of the Medical Faculty in 1912, which position he held until his retirement in 1945. His great friendliness and kindness will long be remembered, especially by his students. One such student was called to the Dean's Office, during his first year to be informed that because of certain inadequacies in his scholastic attainments, he would no longer be able to continue his medical studies at Penn. Upon returning to his classmates with the bad news, he was heard to exclaim: "Gee, you know, it was a pleasure to be fired by such a fine gentleman. I really felt more sorry for him than myself." Dr. Bill Pepper, as Dean of the School of Medicine, had the unique distinction of being the third member of the Pepper family to sign a diploma for a son in successive generations. He performed this service for D. Sergeant Pepper, who was a member of the graduating class in 1932. The first to do so was William Pepper who graduated from the School of Medicine in 1832 and signed the diploma of his son, William Pepper, Jr., upon the latter's graduation in 1864. William Pepper, Jr., one of the original members of this Club, in turn, signed the diploma for his son, William Pepper, III, of whom we are writing.

One New Year's Eve, Dr. Bill Pepper stood with each hand in a hip pocket, a characteristic pose, studying the portraits, by Sully, of Dr. Benjamin Rush and his wife, Julia. After some minutes, shaking his shaggy, gray head, he was heard to exclaim: "You can tell *he* was an old tyrant by the resigned look on her lovely face!" Suffice it to say that Dr. Bill Pepper was beloved by his friends, his students, and especially by the fellow members of this Club—beloved for his kindliness, his warmth and his great humor.

ALEXANDER RANDALL, was born in Annapolis, Maryland, and graduated from the Johns Hopkins University School of Medicine in 1907. He became Professor and Chairman of the Department of Urology

at the University of Pennsylvania School of Medicine. He may be remembered by some of his students at Pennsylvania for the rumor that he had inadvertently become involved in an embarrassing lawsuit brought by a well-known radio commentator whose wife became pregnant too many months after Dr. Randall had presumably performed a sterilizing operation upon the commentator! Elected a member of the Medical Club in 1942, Sandy Randall, unfortunately, felt obliged to submit his resignation a few years later for reasons of poor health. He found that he was not well enough to attend the Club following a left hemiplegia. He was elected an Honorary Member in 1949. He died two years later of a cerebral hemorrhage.

The death of DR. FRANCIS R. PACKARD on April 18, 1950, at age 81, was a grievous loss, especially for the Medical Club. Graduating from the University of Pennsylvania School of Medicine in 1892, he spent the next two years as an intern at the Pennsylvania Hospital, for which institution he developed a lasting interest and affection. He devoted his professional life to the practice of otolaryngology in which field he attained a high reputation. Frank Packard was a scholar of wide interests which was recognized by the University of Pennsylvania when his alma mater conferred upon him the Degree of LL.D. for his accomplishments, especially in the field of medical history. His dinners became famous for stimulating and spicy conversations. As a raconteur, he had no equal. As an illustration of his wit, Dr. John Gibbon relates, in his Memoir, an incident that occurred in Paris when Dr. Packard, who was rather short in stature, was escorting into an hotel diningroom no less than five ladies of the Gibbon and Packard families. He turned to one of them and whispered, "I feel like Chanticleer!"

FRANCIS SINKLER was elected to the Medical Club in 1910. For many years he served faithfully as Secretary. On the occasion of his relinquishing these duties, Dr. John Gibbon, Sr., proposed a vote of thanks "to Francis Sinkler, who served the Club, as Secretary so effectively and so affectionately for so many years—without remuneration!" Dr. Sinkler died two years later on January 2, 1954, at the age of 76. He had practiced neurology until his retirement and attained the rank of Associate Professor of Neurology in the University of Pennsylvania Graduate School of Medicine. Following his death, his widow presented to the Club, in memory of her husband, a lovely gavel which had been inscribed and presented to his father, Dr. Wharton Sinkler, by the Members of the Medical Club in 1909.

On May 10, 1955, DR. JAMES WISTER, held a delightful Club dinner in his house at 5430 Germantown Avenue. It was to be his last. He died a short time later in the Pennsylvania Hospital at the age of 81. As an undergraduate at the University of Pennsylvania, he was a member of the cast in the Mask & Wig Club productions of 1893, 1894 and 1895. Upon receiving his Medical Degree from the University of Pennsylvania in 1897, and completing his internship at the Pennsylvania Hospital, he entered general practice which he successfully continued for more than fifty years. At his dinners, always held in his own house in Germantown, he was the epitome of the courteous and gracious host.

DR. JOHN H. GIBBON, SR., was a native of Charlotte, N.C. He was graduated from Jefferson Medical College in 1871 and served as resident physician at the Pennsylvania Hospital until 1895. He rose rapidly in his chosen field of surgery, becoming Associate Professor in 1903 and four years later full Professor at Jefferson. He was elected a member of the Medical Club in 1913. Until his death just 43 years later, April 13, 1956, he continued a loyal and enthusiastic member of the Club. His dinners at "Lynnfield," his farm in Rose Tree, were anticipated with delight. It was usually arranged, in later years, to have his

dinners in May when the weather permitted cocktails out in the garden surrounded by an unusual curving brick wall which he had constructed with his own hands. He was always a gracious and marvelous host, filling the conversation with lively anecdotes from his rich experience. At the dinner given by Dr. Norris Vaux at the Philadelphia Club in October 1955, Dr. Gibbon, who was then in his 83rd year, remarked when told of President Eisenhower's heart attack, "My God, that's nothing! I already had had my third coronary by the time I had reached his age!"

A little more than a year later, June 1, 1957, the Club suffered another sad loss with the death of DR. WILLIAMS CADWALADER. Just two weeks before his death, at age 80, he attended a Club dinner given by Dr. William Stroud and was his usual charming, humorous self. The day before his fatal heart attack, he had gone to his office to continue his direction of the affairs of the Philadelphia Zoo, in which he had maintained an absorbing interest for almost three quarters of a century. Indeed, his last activity was answering the many congratulatory letters upon the opening of the then new and immensely popular Children's Zoo.

Following the receipt of his Medical Degree from the University of Pennsylvania in 1902, he served three years as a resident physician at the Pennsylvania hospital and followed this with postgraduate studies at the University of Vienna and the University of Munich. In 1906, he returned to become assistant to Dr. Weir Mitchell, at that time a world-renowned neurologist and pioneer psychiatrist. In 1929, he was made full Professor of Neurology at the University of Pennsylvania, which appointment he held until 1943 when he was made Professor Emeritus.

Williams Cadwalader was an ardent fisherman and dog lover. At his dinners, his house somehow seemed always alive with an appealing litter of small terriers. Aside from these pets, his charm, his humor and his wide interests made his dinners renowned and "the peak of perfection."

On September 24, 1957, DR. NORRIS VAUX tendered his resignation "solely on account of my health as I am unable to attend the dinners anymore and it seems to me that there are some younger men who would be glad of the privilege to become members of the Club and who would probably be an asset to the organization.... May I say to all the members that over a period of years I have enjoyed every meeting and gained much knowledge and companionship. It is with sincere regret that these associations must come to an end. Good-luck and good health to all of you!"

Elected January 13, 1920, Norris Vaux was an extremely popular member of the Club and took the keenest interest in its meetings. It gave him the greatest pleasure to hold his Club at "Bedside Manor," his farm near Downingtown, Pennsylvania. A magnificant colored photograph, taken by Dr. George Norris at a meeting in May 1941, has been incorporated in the Minute Book. Norris Vaux started his distinguished career as an undergraduate at the University of Pennsylvania. He received his Medical Degree from the School of Medicine in the year 1905. There followed two years of rotating internship at the Pennsylvania Hospital where he was frequently a thorn in the side for some of the Attending Managers. On one memorable occasion, in response to Norris Vaux's vociferous complaints about turned milk from the Hospital's farm that was being served the interns, two austere Quaker Managers accompanied Norris to the Cold Room where the milk was kept in 25-gallon milk cans. Norris pulled off the lid from an empty can and pointed inside. When the two Managers' gaze fell upon the eyes of a large bullfrog peering above a thin layer of milk, their responses was prompt and dramatic!! Dr. Vaux's internship came close to an abrupt and unscheduled end. Fortunately, he survived this and many other encounters with

the Board of Managers, eventually becoming, with Dr. Edmund Piper, Co-Chief of the Division of Obstetrics and later Director of the Hospital's Division of Obstetrics and Gynecology. He held the latter post until his retirement in 1946. Following his retirement from practice and teaching, he was appointed Secretary of Health for the Commonwealth of Pennsylvania, which office he held until 1951. He died on August 19, 1958, having reached the age of 77 years.

DR. CHARLES FRANKLIN MITCHELL, or "Mitch" as he was affectionately known, was elected a member of the Club on January 26, 1926. Reluctantly, he resigned because of failing health in October 1957. A graduate of the University of Pennsylvania School of Medicine, Class of 1898, he interned at the Pennsylvania Hospital which he dearly loved. He rose to the position of Chief of Surgical Service "B." During World War I, he served overseas in Base Hospital #10 (Pennsylvania Hospital Unit) under the command of Col. Richard Harte (27th Member of the Medical Club). At the end of hostilities, he succeeded Col. Harte as Unit Commander and as such brought the hospital back to the United States. Disarmingly quiet and unassuming, Mitch always had a mischievous twinkle in his eye which never sparkled brighter than when he was quietly baiting Perry Pepper. His low muttered asides when Perry would seize the bait and the center of conversation always afforded great amusement. Afflicted with a slowly progressing malignant growth involving a lower limb, he stubbornly and, characteristically, resisted amputation until the very end, although he certainly must have known that the procedure would relieve some of his suffering even if it did not effect a full cure. Mitch found eventual relief when death came on July 4, 1962. He had reached the age of 86.

DR. WILLIAM STROUD attended the April 1959 dinner given at the Rittenhouse Club by Dr. David Q. Ewing and appeared in his usual good health and spirits. A note in the Minutes of the next Club dated May 12, 1959, records "a very pleasant evening clouded only by the knowledge that Bill Stroud has been admitted to the Bryn Mawr Hospital" for what was initially thought to be pneumonia but sadly turned out to be carcinoma of the esophagus with extension into the trachea. Inevitably, the next few months before he died on August 18, 1959 were miserable. A cardiologist of world-wide reputation, he was a graduate of the University of Pennsylvania School of Medicine in 1916 and afterwards served his internship at the Pennsylvania Hospital. Following overseas service in World War I, he did postgraduate work in London, Edinburgh and Paris. We are grateful to Dr. Charles Wolferth and his Memoir of William Stroud for the information that Stroud spent a year with Sir Thomas Lewis during which he was permitted to work with Sir James Mackenzie on condition that he play golf with his mentor. "The young Dr. Stroud hastily bought golf clubs and equipment as a necessary corollary to his scientific training. He also developed an enduring friendship with Sir James, but whether this was because of interest in work, his heroic efforts to furnish Sir James with an interesting golf game, or his engaging personality, or all three, has thus far not been firmly established." During his medical career, he held many important posts within the field of medicine as well as without. He received the Alfred Stengel Memorial Citation for services to the American College of Physicians, of which he was Treasurer, and for leadership in internal medicine in relation to public health. He was 68 at the time of his death and had been a loyal, although frequently tardy member of the Club since his election on December 13, 1949.

On November 3, 1960, DR. DAVID Q. EWING died suddenly at age 54 while walking through Rittenhouse Square. He was making his way home from an evening call upon one of his nearby patients. Elected in May 1952, the "baby" member of the

Club had fallen heir to the practice of his revered superior, Dr. Arthur Newlin. He ably practiced the precepts of his mentor until his death from a failing heart, which stemmed from a coronary thrombosis suffered a few years before. A graduate of Princeton and the University of Pennsylvania School of Medicine, Class of 1929, Dave interned at the Pennsylvania Hospital and remained as Chief Resident Physician until 1936, the year he became assistant to Dr. Newlin. During World War II, he accompanied the 52nd Evacuation Hospital (Pennsylvania Hospital Unit) to the South Pacific. He served in the rank of Major until his return to the United States after two years and was promoted to Lt. Colonel. Of his many fine qualities, the greatest was probably his genuine love of people. It was this which marked him for the great physician that he was.

DR. CHARLES C. NORRIS was an active member of the Club from the time of his election in 1927 until a year or so before his death at age 84 on February 26, 1961. A graduate of the University of Pennsylvania School of Medicine in 1898, he served as a house officer in the Pennsylvania Hospital and the Hospital of the University of Pennsylvania. He soon became associated with Dr. John G. Clark (25th Member to be elected to the Medical Club) as an Associate in Gynecology. He later held the joint Professorship of Obstetrics and Gynecology at the University. In later life, he became as well known for his life-long hobbies of fishing and small game hunting as for his professional accomplishments. He wrote an eminently successful book on *Eastern Upland Shooting* which was enthusiastically received both in this Country and in Great Britain. It is recalled that at one of Perry Pepper's dinners he produced a recording of the characteristic calls of many game birds which he proceeded to identify with great delight. His own dinners were matchless in their content and appointments.

DR. OLIVER HAZARD PERRY PEPPER was elected to membership April 21, 1931. He received from the University of Pennsylvania his Bachelor of Science Degree in 1905 and his Doctor of Medicine in 1908. He joined the University Medical Faculty in 1912 and became the first full-time Professor of Medicine in 1929, which appointment he held until 1951 when he became Professor Emeritus. During his years of active teaching at the University, he successfully inspired thousands of young doctors who have gone forth to all corners, each bearing with him the sharp memory of a great clinical teacher. The Clinical Conferences which he conducted were never dull and one could expect the unexpected, for Perry Pepper took great delight in turning up some unlooked for facet of disease. Examples of his provocative approach are too numerous to mention. That he could go too far at times is not surprising.

One Wednesday afternoon, Medical Conference was being conducted by Dr. Alfred Stengel, his predecessor as Chairman of the Department of Medicine. Surrounding Dr. Stengel, in addition to Perry Pepper, were the distinguished members of his medical staff, Drs. Miller, Wolferth, Austin, Starr, to name a few. The fourth year student presented the history and findings. Dr. Stengel checked the patient and opened the case for discussion. There was general agreement as to the diagnostic possibilities except for the discordant voice of Perry Pepper. To everyone's amazement, he introduced a diagnosis that appeared totally irrelevant and beyond even the realm of plausability. As it turned out, the diagnosis proved to be straightforward. In concluding his comments, Dr. Stengel requested Dr. Pepper to explain, for the benefit of all, how he came to suggest such an odd diagnosis. Undaunted, without a moment's hesitation, Perry rose to his feet and said that he had reached his diagnosis by a simple process of deduction. It was just an unfortunate whim of fate that, in this case, the deduction proved to be wrong. Over the years, he went

on to explain, he had observed that Dr. Stengel, habitually, on the day before the Wednesday Clinic, would go to the Medical Library and remove, for his own personal use, all the pertinent literature and references on the case to be presented the next day. On the day of the Conference, Dr. Pepper had inquired of the Librarian just what subject appeared to be of interest to Dr. Stengel and what references he had sought. How was Dr. Pepper to know that Dr. Stengel had sought information on a subject entirely different than that presented by the patient today?

At the Medical Club dinners, Perry's behavior was frequently no different. He delighted to startle the members with some far-out statement or point of view well calculated to stir up controversy or, at least, lively discussion. Thus, his presence added much to the entertainment of the evening. Perry Pepper died on January 28, 1962 at the age of 77. It is of clinical interest that the cause of death was similar to that of his brother, Bill Pepper—a dissecting aneurysm.

With the death of DR. GEORGE W. NORRIS on December 11, 1965, the Medical Club lost a member who had been the spirit and backbone of the organization for more than half a century. At the time of his death, he was the eldest in point of age, 90 years, and in length of membership, 55 years. Elected in 1910, George Norris had been a member for the greater part of the Club's history, a circumstance of which he was very proud. We are indebted to Dr. T. Grier Miller for much of the information on the life and career of Dr. George Norris which he reviewed in his Memoir prepared for the Philadelphia College of Physicians. Of long Quaker descent, George Norris was born in Philadelphia in 1875. His mother, however, was Viennese. He studied at the University of Pennsylvania where he received his Medical Degree in 1899. He spent the next two years as an intern at the Pennsylvania Hospital, during which time he prepared the first of many published papers. His interest in the physical diagnosis of cardiac and pulmonary diseases led to the publication, with H. R. Landis in 1917, of what became a standard American text, *Diseases of the Chest and the Principles of Physical Diagnosis*. This was generously illustrated with photographs of living models taken by the author himself.

George Norris had many interests which he pursued with enthusiasm throughout his life. High on the list was the Medical Club. He became a stickler for protocol and the preservation of custom and tradition. Many a host was shattered by his caustic criticism of the menu or the table at Club dinners. He insisted that only whiskies be served during the dinner, although there was a time when the Rules permitted to be served with dinner "one still wine, with beer and whiskey." With the passage of time, he came to feel even more deeply the importance of maintaining time-honored customs and traditions in a world of rapidly changing social values. The respect and affection with which George Norris was held by his fellow members of the Medical Club is revealed in a note recorded in the Minute Book upon the occasion of Jack Gibbon's Club held at "Lynnfield Farm," May 8, 1961. Dr. Norris, during dinner, declared his intention of resigning because of difficulty in getting to the dinners. "McClenahan rejected the idea that Dr. Norris resign and the latter was prevailed upon to withdraw his resignation. It was the consensus that George Norris represented the heart and spirit of the Club of Nineteen and that he should continue as a member even if McClenahan has to fetch him in a cabulance as he offered to do." The spirit of Dr. George Norris will ever be recognized as the guiding light of the Medical Club as it enters its second century of continuous existence.

The Medical Club

Present Rules, 1944

I. The meetings of the Club are held by the members in rotation on the second Tuesday in the months of October, November, December, March, April and May.

II. The number of members shall be limited to twelve, and no member shall be elected, but by a unanimous vote.

III. The dinner shall be served at seven-thirty, and shall consist of oysters, soup, meat, salad, one still wine, beer and whiskey.

IV. The host shall have the privilege of inviting not more than five guests to the meeting.

Francis W. Sinkler,
Secretary.

December 1, 1944

LIST OF MEMBERS

September 1867 to 1967

1. Dr. George Pepper.	Original Member.	Died 1872.
2. Dr. Horatio C. Wood.	Original Member. Resigned 1909.	Died 1920.
3. Dr. James Tyson.	Original Member.	Died 1919.
4. Dr. Horace B. Hare.	Original Member.	Died 1878.
5. Dr. F. F. Maury.	Original Member.	Died 1879.
6. Dr. William Pepper.	Original Member.	Died 1898.
7. Dr. Edwards Rhoads.	Original Member.	Died 1871.
8. Dr. D. Murray Cheston.	Original Member.	Died 1919.
9. Dr. Horace Williams.	Original Member. Resigned 1905.	Died 1918.
10. Dr. Harrison Allen.	Original Member.	Died 1897.
11. Dr. Richard A. Cleeman.		Died 1912.
12. Dr. Samuel W. Gross.		Died 1889.
13. Dr. Herbert Norris.	Resigned 1902.	Died 1912.
14. Dr. William F. Norris.		Died 1901.
15. Dr. Charles T. Hunter.		Died 1884.
16. Dr. William Goodell.		Died 1894.
17. Dr. William F. Jenks.		Died 1881.
18. Dr. Wharton Sinkler.		Died 1910.
19. Dr. Louis Starr.	Resigned 1885.	Died 1925.
20. Dr. William Osler.	Elected 1884. Resigned 1889.	Died 1919.
21. Dr. George Harlan.		Died 1909.
22. Dr. Frederick P. Henry.	Elected 1890.	Died 1919.
23. Dr. Henry R. Wharton.	Elected 1892.	Died 1925.
24. Dr. Samuel S. Stryker.	Elected 1904.	Died 1929.
25. Dr. John G. Clark.	Elected 1907.	Died 1927.
26. Dr. James C. Wilson.	Elected 1908. Hon. Member 1931.	Died 1934.
27. Dr. Richard H. Harte.	Elected 1909.	Died 1925.

28. Dr. George W. Norris.	Elected 1910. Hon. Member 1962.	Died 1965.
29. Dr. Francis W. Sinkler.	Elected 1910.	Died 1954.
30. Dr. William Pepper, III.	Elected 1910.	Died 1947.
31. Dr. John H. Gibbon.	Elected 1913.	Died 1956.
32. Dr. Francis R. Packard.	Elected 1919.	Died 1950.
33. Dr. Norris W. Vaux.	Elected 1920. Resigned 1957.	Died 1958.
34. Dr. Arthur Newlin.	Elected 1921.	Died 1941
35. Dr. Charles F. Mitchell.	Elected 1926. Hon. Member 1957.	Died 1962.
36. Dr. James P. Hutchinson.	Elected 1926.	Died 1943.
37. Dr. Charles C. Norris.	Elected 1927.	Died 1961.
38. Dr. Williams B. Cadwalader.	Elected 1929.	Died 1957.
39. Dr. O. H. Perry Pepper.	Elected 1931.	Died 1962.
40. Dr. Alexander Randall.	Elected 1942. Hon. Member 1949.	Died 1951.
41. Dr. James W. Wister.	Elected 1942.	Died 1955.
42. Dr. D. Sergeant Pepper.	Elected 1948. Resigned 1951.	
43. Dr. William D. Stroud.	Elected 1949.	Died 1959.
44. Dr. Alexander Rush.	Elected 1950.	
45. Dr. David Q. Ewing.	Elected 1952.	Died 1960.
46. Dr. T. Grier Miller.	Elected 1954.	
47. Dr. Francis C. Wood.	Elected 1956.	
48. Dr. John H. Gibbon, Jr.	Elected 1956.	
49. Dr. Brooke Roberts.	Elected 1957.	
50. Dr. William U. McClenahan.	Elected 1958.	
51. Dr. Jonathan E. Rhoads.	Elected 1958.	
52. Dr. Orville Horwitz.	Elected 1960.	
53. Dr. J. Montgomery Deaver.	Elected 1961.	
54. Dr. Truman G. Schnabel, Jr.	Elected 1962.	
55. Dr. Kaighn Smith.	Elected 1964.	
56. Dr. Edward P. Raffensperger.	Elected 1968.	
57. Dr. John L. McClenahan.	Elected 1968.	
58. Dr. J. Edwin Wood, III.	Elected 1970.	

"Reminiscences of Olden Times"

By HAROLD J. ABRAHAMS, PH.D.[1] AND WYNDHAM D. MILES, PH.D.[2]

There is extant an interesting and appreciative eyewitness report which contrasts the styles of medical school lecturing of Drs. William Shippen, Jr., Benjamin Rush, Caspar Wistar, Jr., Philip Syng Physick, Benjamin Smith Barton, and James Woodhouse, of the Faculty of Medicine of the University of Pennsylvania. To our knowledge the article has remained unknown to historians. The article, "Reminiscences of Olden Times," appeared in *Maryland Medical and Surgical Journal* 1, 73–77 (1839–40).

The writer of the "Reminiscences" may have been Dr. Samuel Baker (1785–1835) who was graduated with an M.D. degree from the University of Pennsylvania in 1808, after which he was Professor of Materia Medica at the University of Maryland, 1809–33, and Dean, 1829–30. He served as attending physician at the Baltimore General Dispensary, Baltimore Almshouse, and Baltimore Female Orphan Asylum. Dr. Baker was president of the Medical Society of Baltimore (circa 1824–1830), and founder and first president of the Medico-Chirurgical Society of Baltimore. There is no certainty about the identity of the author of the "Reminiscences," and all that we can say is that, if they are not the work of Samuel Baker, internal evidence points to someone who was a student at that school around the year 1808. He refers to Dr. Shippen's approaching death (which took place in that year) and the succession of Dr. Wistar.

We assume that Dr. Samuel George Baker (1814–41) inherited the notes from his father and published them in the *Journal,* of which he was editor from 1839 to 1840. Samuel was graduated from Yale in 1832 with a bachelor's degree and from the University of Maryland in 1835 as a doctor of medicine. He taught materia medica at Maryland from 1837 until his death. The other members of the editorial committee[3] of the *Journal* would either have been graduated too early to be able to refer to Woodhouse or would have been graduated after Woodhouse's death.

In foot notes about these six professors, we offer opinions held about them by persons other than the writer of the "Reminiscences."

* * *

Reminiscences of Olden Times

[*Extract from a MSS. Introductory Lecture of Professor* *****]

I propose to give a brief sketch of the great teachers of the Pennsylvania school, as they were in the beginning of this century. Not biographical memoranda; not moral views of these fathers of American medicine; but rapid delineations of their style of lecturing; of their mode of communicating instruction. I have looked at them as models for lecturers, and shall endeavor to imitate, however remotely, what may be subservient to your purposes.

[1] Research Associate, Library of The College of Physicians of Philadelphia. Dr. Abrahams resides at Wessex House, St. Davids, Pennsylvania 19087.

[2] Historian, National Institutes of Health, Bethesda, Maryland 20795.

[3] The complete list of names of the members of the editorial committee of the *Maryland Medical and Surgical Journal* for 1839–1840 is as follows:
G. C. M. Roberts
Nathaniel Potter, M.D., U. of P., 1796
James H. Miller, M.D., U. of P., 1810
Robert A. Durkee, M.D., U. of P., 1822
John R. W. Dunbar, M.D., U. of P., 1828
Samuel George Baker, M.D., U. of Maryland, 1835

Thus, all but Dr. Roberts and Dr. Samuel George Baker were graduates of the School of Medicine of the University of Pennsylvania.

When I entered the school at Philadelphia, the veteran Professor Shippen[4] was just bringing to a close, his long and useful career. He laid, beyond doubt, the foundations of anatomy in this country. His character as a lecturer could not be judged of, as late as 1805. He was an exceedingly popular and amusing lecturer; full of anecdote; never hesitating to make the class the subject of his humor, which was always so pleasant as to be invited by the students. I saw him resign his professorship, and introduce the great Wistar to the chair. I heard him compare the school as he found it, with the school as he left it. I listened to his exultation, as he expressed it, on living to see the then character of American medicine. Nor have twenty-five years weakened the impression made by this venerable man, as he stood, bent with age, tottering with infirmity, faltering with grief in uttering his final adieu to his class, his colleagues, and to the medical profession. The flame of life was then flickering in the socket, and in the ensuing spring was extinguished by his death.

Dr. Rush[5] was, in some respects, unrivalled in his style of lecturing. He lectured to disadvantage, because he sat, and read entirely, and his lectures were too long. I have seen him agitated by a cramped position, for the want of that freedom and gesture that spontaneously attend a lecturer who stands. Rush never was at a loss for a pointed, happy illustration. All literature was tributary to his medical teaching. He had another great advantage, in the simplicity of his doctrines. His premises were few and obvious; his deductions sweeping. In war, Rush would not only have been a hero himself, but would have roused even a coward to courage and action. Perfectly enthusiastic in the conviction of the truth of his doctrines, he was confident they would control medicine and conquer disease. While Boerhaave and Cullen modestly admitted the difficulties of their systems, Rush always asserted that his would cover the whole ground of pathology. Hence the popularity of the teacher, and the number and zeal of his disciples. Yet in a quarter of a century his doctrines have given place to others, and are, as a system, now almost forgotten.

There was another arrangement unfavorable to Dr. Rush's usefulness. He lectured so copiously on physiology and metaphysics, that his practical course was too short and crowded. But, withal, who can forget his animated, energetic manner; the boldness of his principles; the vigor of his style; how inexhaustible the fund of medical authority and incident; and how he decorated his discourses with the flowers of literary contribution.

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[4] "In explaining the success of Dr. Shippen in teaching anatomy, we may take into view another faculty which he also exerted with great effect. He went through the subject of each preceding lecture by interrogation instead of recapitulation—thus fixing the attention of the students; and his manner was so happy that this grave process proceeded like a piece of amusement. His irony was of a delicate kind, and so blended with humor that he could repress forwardness and take notice of negligence so as to admonish his class without too much exposing the defaulter." (Joseph Carson, *History of the Medical Department of the University of Pennsylvania,* 1869, p. 106.)

William Shippen, Jr. (1736–1808) was graduated from Princeton (A.B., 1754), studied under physicians in Philadelphia and London, obtained his medical degree at University of Edinburgh (M.D., 1761), gave his first lectures on anatomy in Philadelphia in 1762, on midwifery in 1765, and was professor of anatomy and surgery (and later midwifery) in the University of Pennsylvania Medical School from 1765 to 1808.

[5] "For forty-four years he continued to expound the science of Medicine to admiring listeners, attracted by the polish of his language, the smoothness of his diction, and the clearness of his expositions. . . ." (Carson, *History,* p. 120.)

Benjamin Rush (1745–1813) was graduated from Princeton (A.B., 1760) and from University of Edinburgh (M.D., 1768). He was professor of chemistry in the University of Pennsylvania Medical School from 1769 to 1789, and professor of the theory and practice of medicine from 1789 to 1813.

The great difference between Wistar[6] and Rush, as lecturers, arose from various and obvious causes. It was the purpose of Rush to disseminate in this new world, a new medical doctrine. It was the object of Wistar to take the master piece of God's creation, and exhibit its beautiful structure to an admiring class. It was in place with Rush to give the sparkling of illustration, and the vivacity of anecdote, to relieve the tedium of a course of written lectures, on points principally speculative. Such playfulness illy comported with the almost sepulchral operations of the anatomical table. The education and associations of Rush, his partiality for the boldest declaimer and dogmatist of modern medicine, with his adoption of Brown's doctrine, led him to a confident manner and bold style, a near approach to the dogmatic. But all these were foreign to Wistar's education among the Friends, and to his pursuits in developing the hidden mysteries of animated organization. Yet for purity of style, fluent diction, irresistible persuasiveness of manner; for modesty in assuming, and ability in sustaining opinions, on mooted questions in his branch, Wistar was more admired than any of his colleagues or successors. He combined all the requisites for an eloquent lecturer—a clear conception, ready and beautiful language, perspicuous and precise expression. These flowed from a mind naturally gifted, elegantly cultivated, conversant with ancient, and many modern languages. Students were impatient to enter, and reluctant to leave his room.

Dr. Physick's[7] style of lecturing was and is peculiar. He was almost aphoristic; imitating the closeness of John Hunter's style, without its obscurity. He tells you the truth, the whole truth, and nothing but the truth. If an idea could be expressed in words of one syllable, he never used more than the monosyllables. He seems to render misapprehension impossible. Perfect master of every surgical subject, he felt independent of rhetorical ornament. His sole purpose was to make his pupils thoroughly comprehend him. He preserves the most imperturable gravity from the beginning to the end of his course. I heard him tell but two anecdotes, and then the students were so much accustomed to look at him with awe, that they seemed at a loss whether they were to enjoy the story. Yet he taught surgery most ably. He taught as well as any man living. He is the father of American surgery. He now lives, and long may he live to enjoy the honors of unrivalled eminence, and the universal respect of the medical profession. (Dr. Physick is since dead. He closed his long and useful life in Philadelphia, December, 1837. For an interesting biography, by a worthy son-in-law, Dr. Randolph, himself rapidly taking rank as one of the first American surgeons, see *American Journal of Medical Sciences,* No. xlvii, May, 1839.)

Barton[8] was one of the most accom-

[6] "As a teacher he at once exhibited distinguished qualifications: fluency of utterance, unaffected ease and simplicity of manner, perspicuity of expression, animation, earnestness, and impressiveness." (Howard A. Kelly, *Cyclopedia of American Medical Biography,* 1912, vol. 3, p. 520.)

Caspar Wistar, Jr. (1761–1818) was graduated from the University of Pennsylvania (M.B., 1782) and University of Edinburgh (M.D., 1786), was physician to the Philadelphia Dispensary and the Pennsylvania Hospital, professor of chemistry in the medical school from 1789 to 1792, adjunct professor and then successor to William Shippen in the chair of anatomy, surgery, and midwifery. He served as president of the American Philosophical Society, 1815–1818.

[7] "His lectures, often written at four o'clock in the morning, were as carefully written as if for publication, he deeming it wrong to trust to memory and to instruct others upon subjects he did not clearly understand." (Kelly, *Cyclopedia,* vol. 2, p. 271.)

Philip Syng Physick (1768–1837) was graduated from University of Pennsylvania (A.B., 1785), studied in London, obtained his M.D. degree from University of Edinburgh in 1792, was surgeon at the Pennsylvania Hospital, professor of surgery at the University from 1805 to 1819, and professor of anatomy from 1819 to 1831.

[8] "His style was casual and careless, and it is

plished physicians of his day, and in every respect a man of great refinement of mind and manner. His address and intercourse with students were truly fascinating. In the philosophy of natural history, he was a master. And as a teacher of this, of materia medica, and botany, was universally admired. Keen in criticism, classical in style, graceful in elocution, he was a model for the refined professor and lecturer. He differed toto coelo from Rush, in medical doctrine. And this was a great advantage to the class. For when yielding to the sweeping principles of Rush, I have been, and doubtless others were, happily arrested in enthusiasm by the fine philosophy of Barton's views.

Barton was appointed to succeed Rush in the chair of medicine, but fell a victim to gout, to which he had been a martyr for many years before he entered on his duties.

Professor Woodhouse[9] was a plain, unpretending man, though a learned chemist, and an accurate experimenter, and bold enough too. Little can be said of his style of lecturing. He did not attend to its effect; and he did himself great injustice thereby, and lost much of his influence over his pupils, by neglecting the manner of communicating instruction.

These brief allusions to the lectures of my early days has revived feelings of respect and gratitude for those whose instructions I attended for years. With me these feelings are very sacred. It is a feature in our moral constitution, that as we advance in years, we dwell with increasing interest on the early scenes and incidents of life. Collegiate associations are proverbially lasting; and grateful remembrance of those who guided our education, especially of those whose instructions introduced us to professional life, is peculiarly natural, for they are better recollected. . . .

While these illustrious men were teaching medicine in the University of Pennsyl-

stated that he was not particularly impressive as a lecturer. He was enthusiastic and perhaps a little over-credulous, particularly as regards the virtues of vegetable remedies." (Allen Johnson, ed., *Dictionary of American Biography*, vol. 2, p. 18.)

Benjamin Smith Barton (1766–1815), one of the leading early American botanists, attended University of Pennsylvania, continued his education in Great Britain, obtained his medical degree at University of Göttingen in 1789, held the professorship of natural history and botany at University of Pennsylvania from 1789 to 1792, the professorship of materia medica from 1792 to 1813, and the professorship of the theory and practice of medicine after Benjamin Rush died.

[9] "He became, in a short time, so expert and successful an experimenter, as to receive from Dr. Priestley, who had just arrived in the United States, very flattering compliments on his dexterity and skill. That distinguished gentleman, on seeing him engaged in the business of his laboratory, did not hesitate to pronounce him equal, as an experimenter, to anyone he had seen in either England or France. . . . At times, his devotion to [chemistry] and the labor he sustained in the cultivation of it, were positively marvelous—not to say preternatural. To the young men who attended his lectures, he . . . recommended 'Miss Chemistry as their only mistress'. . . ." (*Autobiography of Charles Caldwell*, edited by Harriot W. Warner, 1855; reprinted, 1968, pp. 173–176.)

Many students came to study with Woodhouse. Among these were Robert Hare, later professor of chemistry in the University Medical School, and Benjamin Silliman, later professor of chemistry at Yale. Silliman subsequently wrote that the chemical lectures proved important to him, as he had not until that time seen many chemical "experiments," and because "every fact with its proof was an acquisition to me. The apparatus was humble, but it answered to exhibit some of the most important facts in the science; and our instructor delighted . . . in the performance of experiments. . . . I had not reason to regret that I attended on the lectures of Dr. Woodhouse. He supplied the first stepping stones by which I was enabled at no distant day to mount higher." (George Fisher, ed., *Life of Benjamin Silliman*, 1866, Vol. 1, pp. 100–103.)

James Woodhouse (1770–1809) was a graduate of the University of Pennsylvania (A.B., 1787; M.D., 1792), surgeon's mate in General Arthur St. Clair's campaign against the Indians of the Northwest Territory (1791), professor of chemistry in the medical school from 1796 to 1809, writer of one and editor of three texts on chemistry, author of a score of articles, and the first noteworthy experimenter in chemistry in the United States.

vania, a number of private lecturers were then preparing themselves for higher spheres. Many of these are now advanced to professorships. These private lecturers are important *collaborateurs* in medical education. They are usually talented, ambitious young men. They see that it is impossible for a professor, during the short period of four months, to display all the topics in his branch, and here they are useful adjuvants. They recapitulate the lectures; they repeat the demonstrations; they often touch doctrines opposite to those of the schools. They associate familiarly with the students, put them on the *qui vive* of improvement. They keep the young employed, and withdrawn from too habitual indulgence in pleasure.

In all these respects, these private teachers are worthy of encouragement and regard. Above all, they are using honorable means to establish reputation; and preparing themselves to fill stations from time to time opening in colleges. A wise and liberal policy will always countenance them. To oppress them is a despotism as fatal to science, as it ought to be to those who presume to exercise it. In these days of enlightened liberality, an attempt to stint the development of intellectual action, or to cramp the aspirings of laudable ambition, will recoil.

A college, well sustained by the talents of its professors, is sufficiently protected by its legal enactments. These private lecture rooms are the preparatory schools of professors. They fortify the colleges when they deserve support; they injure them only when and where they are vulnerable, and require improvement.

Memoir of Jacob Gershon-Cohen 1899–1971*

By HENRY J. TUMEN, M.D.

Because of his many interests and his competence in so many different fields, Dr. Jacob Gershon-Cohen, who died on February 6, 1971, can be described as a modern "Renaissance man." He was a physician, a scientific investigator, an inventor of new procedures and new techniques, a fine musician, an educator and a thoughtful student of medical-social problems. He was imaginative, inquisitive, discerning—a seeker after new ideas, new methods, new worlds to explore. His range of knowledge was tremendous; the facets of his interests were innumerable. But just as great as his knowledge and his competence were his warmth, his kindliness and his gentleness. His most distinctive feature was probably his quietness of manner. One felt that this reflected his sense of self-assurance, self-assurance that was not based on pride of achievement but rather on his clear definition of his own purpose in life and confidence in his ability to fulfill this.

Dr. Gershon-Cohen's career was marked by success of many kinds. This success was well-earned—by hard work, by the ability to overcome handicaps, and by the ability to utilize every opportunity for self-development. Born in Philadelphia in 1899, Dr. Gershon-Cohen's early life was quite similar to that of countless boys whose parents were the recent immigrants of that period. There was financial hardship, but there were also family solidarity, recognition of the value of a good education and emphasis on striving for scholastic superiority, the identification of hard work as the basis of security and attainment, and the willingness to struggle for a better life. One can readily understand that a boy with such a background—by no means an unusual one—grows to manhood convinced that one's work is never done and that there is always a distant goal ahead.

Dr. Gershon-Cohen's early education was in the Philadelphia public schools. There were times when lack of funds made it necessary to take time out to work at some odd job. Fortunately, when high school was finally completed, in 1918, a Simon Muir Scholarship made possible the transition from Central High School to the University of Pennsylvania. The most important event of these formative years, however, and probably the most important event of his entire life, occurred when Dr. Gershon-Cohen met Sara Eskin, the girl he married in 1921. Sara was already a successful pharmacist, a young woman of great competence, with sound common sense and good judgment—and complete confidence and faith in her man. It was with Sara's support and encouragement that Jack was able to complete his premedical and medical education and then to embark without delay on training for his chosen career. Throughout their long life together, until her death in 1968, Sara gave Jack the ideal environment for his creative work. She relieved him of the worry of looking after many of the practical details of everyday life, made a happy home that welcomed the visits of large numbers of stimulating friends and devoted herself entirely to making it possible for Jack to do his work happily and free of daily worries. There were no children and Jack was always the center of Sara's love and devotion. They made a perfect team.

* Read before The College of Physicians of Philadelphia, 12 May 1971. Prepared and published at the request of the Council of The College of Physicians of Philadelphia.

In 1924 Dr. Gershon-Cohen received his medical degree from the University of Pennsylvania and then served as an intern at the former Jewish Hospital of Philadelphia. He had already decided upon radiology as his specialty and immediately after internship entered a training program at the University and Graduate Hospitals. When this was completed he established an office for the practice of radiology and continued this, with associates, until his death.

Dr. Gershon-Cohen was not one to stop studying. He returned to the Graduate School of the University of Pennsylvania and was awarded the degree of Doctor of Science (in Medicine) by the University in 1936. In 1957 he was successful in obtaining certification as a specialist in Nuclear Medicine. He was, of course, certified by the American Board of Radiology quite early in his career, in 1934.

For a number of years Dr. Gershon-Cohen served as consulting radiologist to several nearby smaller hospitals. These included the old Eagleville Sanitorium, the Philadelphia Skin and Cancer Hospital, the Chester County Hospital, the Newcomb Hospital in Vineland, and the Millville Hospital in Millville, New Jersey. As a result of his work with distant hospitals, he conceived and developed a technique for transmitting x-ray images over telephone lines. This was called "telognosis" and made accurate roentgen diagnoses available to hospitals without a resident radiologist. Dr. Gershon-Cohen later used television for this purpose and was one of the first in radiology to work with this medium. He experimented with X rays in color. Just prior to his death he had proved that the Bell Company's new PICTUREPHONE would receive diagnosable roentgenograms. His files still contain notes, outlines and protocols for a great deal of reseach he was planning in radiology and other areas.

During World War II, Dr. Gershon-Cohen served with the U.S. Navy and attained the rank of Commander. Not long after returning to practice in Philadelphia he became Director of the Department of Radiology at Albert Einstein Medical Center. He served as Director until he became emeritus in 1966. During those years he also was Assistant Professor of Radiology in the Graduate School of Medicine of the University of Pennsylvania. In 1965 he became Professor of Research Radiology in the Temple University School of Medicine. He continued in this position until his death.

Many years ago Dr. Gershon-Cohen developed a keen interest in the roentgenography of the breast. He was one of the strong proponents of mammography, and his efforts were largely responsible for the acceptance of mammography as a valuable diagnostic procedure. He wrote a large number of articles on mammography and on diseases of the breast and, with Dr. Helen Ingleby, produced a textbook, *Comparative Anatomy, Pathology and Roentgenology of the Breast,* published in 1960. He also wrote *An Atlas of Mammography* that was published in 1970.

Dr. Gershon-Cohen was also a pioneer in thermography and was an acknowledged leader in the introduction and development of this diagnostic procedure. He helped found the American Thermographic Society, formulated its bylaws and, in 1967, became its first president.

Dr. Gershon-Cohen's list of publications numbered more than 400 articles, in addition to the two books already mentioned. These articles covered a wide range of subjects—from gastrointestinal physiology to dental caries, and from panoramic radiography to mammography and thermography. In recent years Dr. Gershon-Cohen had written a number of penetrating and provocative articles on problems of medical education. He was concerned particularly by the need for educating medical assistants to supplement the work of physicians and for increasing the number of family doctors. In preparing articles advocating this form of training he made an intensive study of the

ıse of *feldshers* in Russia and other countries.

Fortunately, Dr. Gershon-Cohen received many honors and awards during his life. He shared the Alvarenga Award of The College of Physicians in 1934. In 1937 he received the Gold Medal Award of the International College of Radiology. He was president of the Philadelphia Roentgen Ray Society in 1965. The American Cancer Society gave him the Clement Cleveland Award in 1968 for his outstanding work in the control of breast cancer. For his communal activities he received awards from the 4-8-2 Square Club in 1959, the Golden Slipper Club in 1960 and the American Jewish Cultural Festival in 1970.

For his recreation Dr. Gershon-Cohen turned to music. He was a fine violinist and this was fully recognized by his many friends among the musicians of Philadelphia. Many of the members of the Philadelphia Orchestra and a number of the great artists who visited this city spent evenings in his home, joining him in playing the quartets he loved so much. I remember being a guest at a number of these evenings, with Jack doing extremely well as second violin in a quartet the other members of which were all from the Orchestra. These evenings never ended on time. There was always one more quartet to play—and what better escape is there from the tensions of the world?

In 1967 Jack wrote for *Philadelphia Medicine* a delightful article, "A Prescription for Retirement." He urged that the antidote for the pains of retirement is to become a serious amateur in some art or craft. He insisted that it was necessary to absorb oneself with passion in a chosen activity. He told how he had turned to his violin playing and participation in chamber music as his outlet, his protection against the letdown that might come as he relinquished his duties and responsibilities. The article is a happy one. It is easy to sense the joy that Jack derived from his violin and from joining with others in exploring the great quartets. It is obvious, however, that the article was not written by someone who felt that he had retired. Jack had simply added one more activity to the many in which he was engaged, and he was having the greatest fun and gratification from doing so.

This was a happy man—happy in his home, in his work, in his achievements and in his hours of recreation, hours that were touched by the beauty of great music. If he suffered frustrations, as all of us must, he was able to turn to something else for release. As we honor his memory and recall all that he accomplished, let us recognize that only a man of great intelligence could have done as much as Jacob Gershon-Cohen did, in a way that gave him such a well-rounded and gratifying life, and in a way that made for him the countless friends who will always miss him.

Memoir of Benjamin Greenspan 1911–1970*

By BENJAMIN A. GOULEY, M.D.

Benjamin Greenspan was born in Philadelphia, February 6, 1911, in the Eighth Street and Girard Avenue area, the son of Dr. Leon Greenspan and Cecelia Jassanoff Greenspan. His father was a respected dentist, one of the founders of the old Northern Liberties Hospital. He was a graduate of Central High School, Philadelphia, and he received his collegiate education at Swarthmore College from which he was graduated with a B.A. degree in 1933. Much of his philosophy and social outlook in later life was molded by his college experience at Swarthmore. He majored in English and became a part-time reporter, during his senior year, for the old *Philadelphia Record.* Dr. Greenspan was graduated with honors as a member of Phi Beta Kappa and decided on a medical career. He spent a year furthering his pre-medical education at the University of Pennsylvania, and then entered the School of Medicine from which he was graduated in 1938. He was a member of the Alpha Omega Alpha Honorary Society. During his intership at the Philadelphia General Hospital, he developed an early interest in surgery. He became a surgical resident at the Mt. Sinai Hospital of New York in 1940–41, then at the Sinai Hospital of Baltimore, Maryland, 1941–42, and finally at the Mayo Clinic, 1942–44.

On completion of the latter he was commissioned as a Captain in the United States Army Medical Corps, becoming the Assistant Chief in General Surgery at the Nichols General Hospital, Louisville, Kentucky, then Chief of General Surgery at the Crile Hospital, Cleveland, Ohio, and finally Chief of Surgery at the William Beaumont Hospital, El Paso, Texas.

In 1947, on returning to civilian life, Dr. Greenspan entered into the practice of surgery in Philadelphia and joined the staff of Dr. Albert Behrend at the Einstein Medical Center. He became Senior Attending Surgeon at Einstein in 1952 and Chairman of the Division of Surgery in 1957, a post he held until 1967. He continued in active practice until the day of his death, October 25, 1970.

Dr. Greenspan was recognized as one of the leading surgical personalities in Philadelphia. He was a thoroughly trained surgeon. He was ready at all times to investigate and further any advance in the field of surgery, and at the same time was resolutely resistant to expediency and visionary detours. Under his direction and in conjunction with his co-worker, Dr. Aaron Bannett, the programs in vascular surgery and transplant surgery at Einstein contributed in an impressive degree to the forward leap of those specialties during the last two decades.

Recognizing from his own beginning the importance of a comprehensive, well grounded and disciplined surgical training, Dr. Greenspan was actively engaged in the training programs. He did not, however, allow his strict professional outlook to diminish his humaritarian concern in the welfare of his patients. He had a deep and abiding interest in the personal problems of individuals and, in a broader sense, a social consciousness that revealed itself in a most articulate manner. A social evening at his home bristled with penetrating comment on the problems of the day.

* Prepared and published at the request of the Council of The College of Physicians of Philadelphia.

Despite the heavy professional burden that he carried, Dr. Greenspan maintained a deep interest in literature that had its beginning in his college days. He remained abreast of the best in current literature and withal was an avid student and participant in various art activities. Aside from his interest as an art collector, he took up the study of sculpture and in his last two years gave to it many hours snatched from a constantly overcrowded calendar.

His death was a tragic loss not only to his wife, Frances Greenspan, and his sons, Peter and Ralph, but also to thousands of people—patients and friends alike—who revere his memory.

Memoir of Frederick Louis Hartman 1892–1970*

By DANIEL B. PIERSON, JR., M.D.

Frederick Louis Hartmann was born in Norfolk, Virginia, on January 16, 1892. He moved with his family to Atlantic City, New Jersey, at an early age and grew up and received his secondary education there. He was a track star and an expert swimmer and later served on the Atlantic City Beach Patrol as surgeon.

He was an outstanding student in college and was graduated from the University of Pennsylvania in the Class of 1915 as president. He was on the varsity cross country team, the varsity two-mile relay team, and was winner of the Manager's Cup. His national fraternity was Phi Gamma Delta.

He was graduated from the University of Pennsylvania School of Medicine as treasurer of his class in 1918 and held the post of treasurer for 50 years. His honorary societies were Alpha Omega Alpha and A.M.P.O.

Fred interned at the Lankenau Hospital during the influenza epidemic of 1918, which offered vast experience and long hours of hard work. He served his residency there and remained on the staff for the remainder of his life as Chief of Medical Service "A" after the death of Dr. Henry F. Page, Sr., and as Senior Consultant after 1957.

In early professional years, he was on the Pathology Section of the Philadelphia General Hospital and the University of Pennsylvania and was responsible for many autopsies at these institutions. He also assisted Stanley Reimann at the Lankenau Hospital on research for the therapy for myelogenous leukemia and hypoglycemia.

Later he was consultant for Preston Retreat Maternity Hospital, All Saints Tuberculosis Hospital, and Elwyn Training School.

He was a member of the American Medical Association, Pennsylvania State Medical Society, Philadelphia County Medical Society and a Fellow of The Philadelphia College of Physicians.

In addition to his many professional commitments and a very active medical practice, Fred was an avid duck hunter and fisherman. He took his vacation in the fall and usually in Brigantine, New Jersey. He belonged to a group of hunters in Jersey who owned what Fred called the "Shanty" on stilts on Egg Island in Great Bay above Brigantine. He loved to be there and enjoyed the storms that usually occur in that season; he refused rescue by the Coast Guard of him and his family, as they were "enjoying it."

As a diagnostician and therapeutist he was unsurpassed; his friends and associates called him the "Doctor's Doctor." His teaching ability is attested to by the fact that the Ex-Residents Association and his friends presented a portrait of him to the Lankenau Hospital in 1952. It hangs in the third floor medical section of the hospital.

He is survived by his wife, Anna Speidel Hartmann, a daughter, Mrs. Anna Lou Bibeault, and one grandson.

* Prepared and published by the Council of The College of Physicians of Philadelphia.

Memoir of Kelvin Anthony Kasper 1899–1971*

By THOMAS K. RATHMELL, M.D.

Kelvin A. Kasper died on January 10, 1971. He was a native of Faribault, Minnesota. He attended Carlton College and Notre Dame University. The degree of Doctor of Medicine was conferred upon him by the Jefferson Medical College in 1926.

Dr. Kasper interned at Jefferson and served at the Philadelphia Hospital for Contagious Diseases for 20 months. He was a teaching research Fellow and later Assistant Demonstrator at the Daniel Baugh Institute of Anatomy.

A specialist in tear duct surgery, Dr. Kasper was Chief of Otolaryngology at the Wills Eye Hospital for 25 years. The Wills Ex-Residents Society presented him with a silver tray in recognition of outstanding service to the hospital. He was also on the staff of Doctors, Episcopal and Philadelphia General Hospitals. He was Chief of Staff at Nazareth Hospital and Professor of Otolaryngology at Jefferson and consultant to the Veterans Administration Hospital. He was the author of a number of published articles on the subject of tear duct surgery.

Dr. Kasper was a Fellow of The College of Physicians of Philadelphia, member of the American Medical Association, American Board of Otolaryngologists, the Laryngological Society of Philadelphia, the American Academy of Otolaryngologists and the County Medical Society.

Dr. Kasper was known as a perfect gentleman, neat and meticulous. Few knew that he carried a rheumatic heart which had, according to an associate from the Old Pine Street Chest Department of Jefferson, "every murmur in the book." Nevertheless, he did EKG work to earn his way through medical school. At Wills Eye Hospital, patients came to him from all over the world for tear duct surgery.

He is survived by his wife, the former Anne Britt, who resides in Narberth, Pennsylvania.

Dr. Kasper triumphed over his physical handicap. Many regard this as a measure of commendable character.

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Memoir of F. Maurice McPhedran 1888–1970*

By JOSEPH STOKES, JR., M.D.

As the son of a distinguished Chairman and Professor of the Department of Medicine, Dr. Alexander McPhedran of the University of Toronto Medical School, Dr. F. Maurice McPhedran was born in Toronto, Ontario, on April 26, 1888. His brother Fletcher also became a physician. After a primary education at home, his later education was at Upper Canada College and for the most part at St. Andrews College before a six-year course at the University of Toronto and Medical School, which lead to the M.B. degree with honors in 1912. He interned at the Toronto General Hospital, and just preceding World War II he took a post-graduate course in Berlin and a course in pathology at the London Hospital during 1913–14. Pulmonary tuberculosis first struck in 1914–15, and although he had not entirely recovered, he qualified for the rank of Lieutenant and Captain in the Canadian Army Medical Corps in urology in March 1916 and went to England with his regiment, where he again became ill with a return of active tuberculosis. After discharge from the Army in 1919 as "medically unfit," he was under treatment in Canada from 1918 to 1921, when he entered the United States for a month's postgraduate course at the Trudeau School of Tuberculosis on Saranac Lake, N.Y. On September 1, 1921, he married Jane Grace in Point Pleasant, New Jersey. They had two daughters and two sons; both sons are physicians in academic medicine, Alexander being at present a member of the National Advisory Council for Regional Medical Programs.

After serving for a year as Assistant Resident at the Trudeau Sanitarium, McPhedran was appointed to the X-ray Department of the Henry Phipps Institute of the University of Pennsylvania where he remained until 1936.

Memoirs at times furnish the opportunity to stress scientific contributions that have been absorbed into the mainstream of medical culture without continuing acknowledgments to their original contributors. In the history of civilization, no one knows who contributed the wheel or the brick, and in recent medical history it is commonplace to forget who first fractionated the most useful products of blood plasma. Dr. F. Maurice McPhedran made such a fundamental contribution to medical culture in extending the vision of the clinician to the interior of the chest by means of the routine tool of X-radiation for the discovery of the earliest signs of pulmonary tuberculosis. Prior to his work in this area, clinicians had been limited almost entirely to the stethoscope in their efforts at early detection. Actually, detection in the earliest stages of the disease had become the hallmark of skilled internists. They little thought of the X-ray tube as a *routine* clinical tool for obtaining the earliest evidence of pulmonary disease. McPhedran's discovery, so startling to academic clinicians, that considerable numbers of medical students were slowly developing pulmonary tuberculosis no skilled clinician could detect with the stethoscope, was sufficiently disturbing to endanger his professional standing and career. It required years of careful documentation, with both his own and the students' careers in jeopardy, to confirm completely his early findings and to bring X-radiation into proper clinical perspective as

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the *sine qua non* for early detection. Today the difficulties he faced at that time appear almost incredible, and yet when lives and skills are in question the emotional overtones often exceed the bounds of reason. The clinicians finally capitulated as the result of mounting positive evidence, and the system for handling autopsies on tuberculous cases and of open tuberculosis in patients was completely revised as a result of his findings.

In association with Professor Charles N. Weyl of the Moore School of Electrical Engineering, he devised a method of automatically synchronizing X-ray exposures with selected phases of the cardiac cycle so as to avoid the blurring referable to systolic movement and to make it possible to obtain exactly comparable serial films in which changes in the size of a lesion could be measured. This method was presented before the American Philosophical Society on April 24, 1925. Thus, prior to the days of streptomycin and isoniazid, countless students and patients were aided by McPhedran's careful and persevering longterm studies. Also following the development of these curative drugs, the early detection and close supervision of the progress of pulmonary tuberculous lesions still depended greatly upon the skilled techniques and the clinical diagnosis he had painstakingly developed.

With Dr. Eugene Opie he carried out a series of studies on early detection of tuberculosis and on its spread in various parts of the community. Three of his classical papers are worthy of mention: "Classification of Pulmonary Tuberculosis in Childhood and Adolescence" (McPhedran); "Spread of Tuberculosis Within Families" (Opie and McPhedran); "Organization of an Out-Patient Tuberculosis Clinic for Epidemiological Investigations" (Opie and McPhedran).

He became Assistant Professor of Medicine at the University of Pennsylvania and in charge of much of the pulmonary work at the Children's Hospital and later at the St. Christopher's and Germantown Hospitals. At the Germantown Hospital from 1936–48 he was Director of Research, Department of Respiratory Diseases. After he became a Diplomate of the American Board of Internal Medicine in 1937, he was naturalized as a U.S. citizen; he became a member of the American Clinical and Climatological Association, the Association of American Physicians, and the American College of Physicians.

The McPhedran family was a closely knit one and to a considerable extent during the children's development it revolved around the Germantown Friends School and the Germantown Monthly Meeting of Friends, in which Dr. McPhedran actively participated, frequently speaking from the gallery of the meeting with both Biblical and literary quotations for which he had a remarkable memory. His greatest relaxation was in recorded music and in attendance at symphony and festival concerts. His unfailing attendance for decades at the Bach B Minor Mass Concerts of the Bethlehem Pennsylvania Choir was legendary. Also legendary was his faithful care of patients with no effort too great for him in his concern and interest for their welfare. He died of a myocardial infarct on November 29, 1970.

Memoir of Harold Hollingsworth Morris 1884–1970*

By ROBERT F. NORRIS, M.D.

Harold Hollingsworth Morris, M.D., died in the Bryn Mawr Hospital on December 17, 1970, after a short illness. He was born into an old and well-known Philadelphia family on January 16, 1884, the son of Mary Lownes and Theodore Hollingsworth Morris. He was one of sixteen children. Following elementary education at the Friends Select School in Philadelphia, he was graduated from Haverford College in 1904 and from the School of Medicine of the University of Pennsylvania in 1908. His class was noteworthy in the history of the medical school for the number of members who distinguished themselves later in life. Among them were J. Harold Austin, John A. Kolmer, Edward B. Krumbhaar, John H. Musser, O. H. Perry Pepper, Antonio G. Sison, DeForest P. Willard and Frederick D. Weidman. From 1908–11, he was an intern and then chief resident at Pennsylvania Hospital in Philadelphia.

Following his residency, Harold Morris devoted his entire professional career to missionary work in China. He joined the medical staff of St. John's University in Shanghai, which had a loose affiliation with the University of Pennsylvania, and later became Chairman of the Department of Medicine and Chief of Medicine in St. Luke's Hospital, Shanghai, until his retirement in 1949. For much of this time he was associated with the late Dr. Josiah McCracken, who was Chief of Surgery at St. Luke's and who was also a native Philadelphian and a graduate of the University of Pennsylvania School of Medicine. St. Luke's Hospital was one of two charity and teaching hospitals in China supported by the Episcopal Church. He spent his sabbaticals in Philadelphia working and studying at Pennsylvania Hospital and the University of Pennsylvania. When the United States became involved in World War II, he remained in Philadelphia and, as did Dr. McCracken, devoted most of his time as an attending physician at Pennsylvania Hospital. He resumed his work in Shanghai in 1946 but with political control passing to the Communists, he and his family were forced to leave China permanently in 1949. He retired from medical practice at the same time.

In 1911 he married Frances Westwood Jordan, a nurse at Pennsylvania Hospital, who died in 1950. They had four children, Christopher C. Morris, II, Harold H. Morris, Jr., both physicians practicing in Philadelphia, Evelyn M. Blair, now deceased, and Alice E. Walker. In 1952, he married Emily N. Campbell, who survives him.

In medical school he was considered to be a serious, conscientious and competent student. It was his unassuming interest in the welfare of others and in his kindly understanding of their problems that led him to enter the medical profession and to devote his professional life to his missionary activities in Shanghai. His understanding of human needs reinforced his medical knowledge in making him an excellent teacher of medical students who admired and respected his personal qualities as well as his professional skills. In a country largely devoid of western medical facilities, he was frequently sought after as a consultant for patients even at a great distance from Shanghai. Because of the spectrum of disease in China, in contrast to that of western

* Prepared and published at the request of the Council of The College of Physicians of Philadelphia.

countries, he became especially well versed in tropical diseases and infections. It was only appropriate, therefore, that he should have been offered a post as Professor of Tropical Medicine at Tulane by his old friend and classmate, Dr. John H. Musser, when it was impossible for him to return to Shanghai during World War II. For personal reasons he declined the offer.

He was a skillful and vigorous athlete and until late in life he participated in his favorite sports of cricket, golf and tennis. While at Haverford College he played on a cricket team which competed in England, and again in medical school he was a member of a University of Pennsylvania cricket team which played matches in England. In Shanghai, he was the only American on the British cricket team which competed with other port cities of the Far East. Although sports took much of his time for recreation, he also enjoyed music and for some years sponsored a string quartet in Shanghai. At various times he befriended refugee musicians from Central Europe and Russia.

In Shanghai before World War II, foreign nations were segregated from the native Chinese in compounds or enclaves. Social and religious activities were usually restricted to individual nationalities and to the individual geographic locations where their homes were clustered. Harold Morris, while residing in the American area, was also on close friendly terms with the members of the British community because of his athletic abilities and his warm personality which breached the social barriers so often erected by the British overseas. He and his family were among the few Americans who were communicants of the Anglican Church of Shanghai.

During the years following retirement, he lived quietly pursuing his interests in outdoor activities, in church affairs, and in visiting with members of his family. His death brings to an end a long career of medical and religious service to others. His most important contribution was probably the education and training of young men to practice medicine in China.

Memoir of Charles Rupp 1908–1970*

By FREDERIC H. LEAVITT, M.D.

On September 1, 1970, Charles Rupp died in the Memorial Hospital for McHenry County, Woodstock, Illinois. He and his wife had been at their nearby farm during August. Previously, he had been under treatment for carcinoma of the lung at the Lankenau Hospital. His hosts of friends and associates were saddened by the news that Charles, with his dry good humor and wise counselling, was no longer to be with us.

Charles Rupp was born in Philadelphia October 12, 1908, the son of Helena Bauer Rupp and Charles Rupp, Sr. His brother, Victor B. Rupp, survives.

In 1935, Charles married Marjorie Drew, who died in 1950. Charles and Jane Dubbs were married January 2, 1954, and she survives her husband. There were no children from either marriage. Jane and Charles were a congenial couple. She collaborated with him in the many social, neurological and psychiatric pursuits in which he was engaged and was his constant companion on their extensive travels.

Dr. Rupp had numerous hobbies, one as a philatelist, another, an unusual one, as a collector of railroad timetables and railroad books, and another as a traveler, preferably by rail. Because he was an inveterate reader and continuing scholar, his fine library encompassed a wide range of topics.

The background education of Charles Rupp was the finest obtainable. This motivated him to set the highest standards for himself in all his endeavors He was graduated from the William Penn Charter School in 1925. From there he went to Cambridge, Massachusetts, being graduated with an A.B. degree from Harvard College in 1929 and with an M.D. degree from the Harvard Medical School in 1933.

Dr. Rupp continuously directed his medical career in the field of psychiatry and neurology, in which domain he served with many honors. He interned at Bryn Mawr Hospital, after which he became a resident at the Orthopaedic Hospital and Infirmary for Nervous Diseases, under the tutelege of Dr. Charles W. Burr and Dr. Theodore Weisenburg. The following year he became assistant resident psychiatrist at the New York Hospital, returning to Philadelphia in 1936 to become a Fellow in Psychiatry at Pennsylvania Hospital. He completed his hospital training as Senior Psychiatrist at the Rhode Island State Hospital where he initiated a new approach for resident training. In 1934 Dr. Rupp received the diploma of the National Board and he became a diplomate of the American Board of Psychiatry and Neurology in 1941 in both psychiatry and neurology. He was a director of the Board from 1961–69 and was its president in 1969.

Upon establishing private practice in Philadelphia, Dr. Rupp served in the Neurology Departments of the Hospital of the University of Pennsylvania, the Graduate Hospital of the University of Pennsylvania and Bryn Mawr Hospital. He was a consultant at the U.S. Veterans Bureau Hospital at Coatesville, Pa., and worked at Philadelphia General Hospital where he was Chief of Service and Chairman of the Department of Neurology, 1963–67, Consultant, 1967–70, and President of the Medical Board, 1954–57. He joined the staff of the Lankenau Hospital in 1941 and in 1954 was

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elected Chief and Chairman of the Department of Neurology and Psychiatry, serving in that capacity until his death. He was an Associate Professor of Neurology at the Medical School of the University of Pennsylvania and at the Graduate School of the University of Pennsylvania.

One of Dr. Rupp's great interests was in serving with and watching the growth of Fairmount Farm, a private psychiatric hospital.

Dr. Rupp was elected a Fellow of The College of Physicians of Philadelphia in 1942. He was president of the Philadelphia Neurological Society, 1954–55, having been secretary from 1944-54. A member of the American Neurological Association, he served as first vice president, 1959–60, as secretary, 1955–59, and as assistant secretary, 1948–55. He was a Fellow of the American Academy of Neurology, of the American Association for the Advancement of Science and of the American Psychiatric Association, being elected a Senior Life Fellow in 1969. He also belonged to the American Association of Neuropathologists, the Society of Biological Psychiatry, the American Medical Association and the Medical Club of Philadelphia.

He was a member of the Harvard Club of Philadelphia and of The University Club of New York.

Dr. Rupp's concern with education continued throughout his life. He enjoyed teaching, research and writing, having edited several books. His horizons constantly expanded with the research he conducted, although he was first to admit that "this week's knowledge becomes next week's nonsense," one of his favorite quotations. He frequently collaborated with the late Dr. Helena Riggs in neuropathological research, presenting their papers at international congresses. During the past several years he became involved in geriatric neurology. His numerous papers published in scientific journals attest to this interest.

Although he was offered full time academic posts, Dr. Rupp preferred to remain an independent clinician, following in the established Philadelphia tradition. He became well known as a medico-legal expert, a field in which he was respected for his intellectual honesty and incisive judgment.

It can truly be said Dr. Rupp's main focus in life was study, whether in the disciplines of neurology and psychiatry, or in his hobby fields of railroadiana and history. All of us in Philadelphia who have known Charles Rupp both intimately and informally mourn his untimely death.

Transactions of the Philadelphia Neurological Society

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Recent Experimental Data on Cerebellar Function Robert Heimberger, M.D. University of Indiana

Discussant: Nicholas Zervis, M.D.

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The Anatomy of Memory A. Earl Walker, M.D. John Hopkins University

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The Effect of Anti-Lymphocytic Globulin on the Humoral and Cellular Response in Experimental Allergic Encephalomyelitis. Sidney H. Schnoll, M.D. and Henry McFarland, M.D., Thomas Jefferson University Medical College

Mucocele of the Sphenoid Sinus with Bilateral Internal Carotid Artery Occlusion. Colin S. Doyle, M.D. and Frederick A. Simeone, M.D., Pennsylvania Hospital and the University Pennsylvania School of Medicine.

An Abortive Form of Subacute Necrotizing Encephalopathy. Sarah S. Werner, M.D., Thomas Jefferson University Medical College.

Spontaneous Hypothermia, A Case Report. Robert Slater, M.D. and Richard N. Harner, M.D., Hospital of the University of Pennsylvania

Variability in Response of Cerebral Autoregulation in a Case with Ischemic Anoxia and Cerebral Edema. Vijay S. Kumar, M.D., Hospital of the University of Pennsylvania

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Complications of Medical Management of Epileptics William S. Masland, M.D. University of Pennsylvania

Bioelectric Maturation and Neonatal Seizures Leonard J. Graziani, M.D. Roger Q. Cracco, M.D. Leonard Katz, M.D. Thomas Jefferson University

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We and Our Environment—Where Are We Headed?[1]

By P. WALTON PURDOM, PH.D., P.E.[2]

IN opening a discussion about the environment, it is not unusual for the speaker to view the present situation with alarm, to yearn for "the good old days," and to forecast doom. I have too good a memory to yearn for days gone by and I believe that we, the American people, have better judgment than to founder into disaster. While I am not a prophet of doom, I am concerned that social action be taken now to reverse the trend toward more people, more waste and more pollution.

Let me reminisce a moment. When I entered elementary school, the first things I was taught were the location of the "Sears, Roebuck Library" and a sign language using one or two fingers. I was living in Waycross, Georgia, when a smallpox outbreak occurred in Tampa, Florida, so I was one of the volunteers for smallpox vaccination. A few days later, I had to appear in the school auditorium to show that my arm had not "rotted off."

Even some thirty years ago, there were problems in the United States from typhoid, malaria, murine typhus, undulant fever, dysentery—or "summer complaint" as some used to say—and other communicable diseases transmitted through the environment. No! I have no yearning whatever to return to those old days.

Sanitary engineers, physicians, nurses, and other public health workers may be justly proud of their record of accomplishment in conquering many dreaded communicable diseases. We dare not relax these efforts too much, however, because our job is incomplete. Take food poisoning, for example, an area where we know what to do but where our whole inspection system needs revamping.

Venereal disease was thought to be virtually eradicated, but is now rampant again among young adults. On the whole, however, our environmental problems of today are new kinds of problems, the primary causes are different and solutions require new ways of thinking about one's relations to society and the patterns of social behavior and political organization.

I would like to discuss briefly the nature of today's environmental problems and the paths to a better environment. I assume

[1] Arthur Parker Hitchens Lecture XV, co-sponsored by Pennsylvania Public Health Association, Region One, and The College of Physicians of Philadelphia, 30 September 1971.

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that you have heard enough about the problems and would rather explore the social action necessary for an environment that enhances the quality of life.

Today's environmental problems are a relatively new experience for mankind. They are different from most environmental problems of past years, yet they have not arisen suddenly, but rather represent a buildup of many factors over a period of years. We have only recently become acutely aware of their existence.

These problems may be characterized as follows:

1. Problems are primarily man-made or a result of man's activities.
2. Population growth adds new dimensions.
3. Man's interventions are now of such magnitude as to precipitate a series of events with unforeseen consequences, and,
4. Specialization of task and training and divisiveness of political organization leads to a limited, narrow perspective and approach that impedes comprehensive solutions.

Let me illustrate. The design of autos and highways as separate systems without considering their interaction with each other and with the human element of the system has led to needless destruction or maiming of lives. We add new chemicals to the environment without knowing fully their effects. Overuse of high-nitrate fertilizers builds up the concentration in ground water sufficient to cause methemoglobinemia. You are, of course, well aware of the noise and pollution from man's activities.

The quality of life is further threatened by an expanding economy and growth of population. The result is an increasing competition for resources, space, recreation, housing, transportation, and even educational facilities. At one time man lived in symbiosis with his environment—his wastes and carcasses were returned to the land off which he lived. Now, man acts more like a pathological parasite, destroying by his own unchecked growth that which is necessary to sustain his life.

The world population attained its first billion about 1850. This was doubled in the next 75 years. Another billion was added in 35 years, to 1960, and it is estimated the fourth billion will be reached by 1980. At the present time, the population is doubling about every 35 years! If we consider optimizing food production by all known means, the earth's carrying capacity will probably barely feed four doublings of the present population.

On the basis of shorter terms, existing urban facilities will have to be doubled by the year 2000. While at one time the environment could assimilate human wastes, these wastes now overwhelm the natural systems. As man's numbers increase, and his waste accordingly, more and more efficient waste treatment systems are required until the ultimate practical end result is no emission whatever, zero emission, to the environment. The practical result is complete recycling of wastes. Not the least of the problems of increased population, and its concentration in urban areas, is the increasing frequency and complexity of unconstructive, but unavoidable, human contact.

Recent population studies in the U. S. suggest a decline in birth rates. It is too early to tell if this is really so. Stabilizing at the present population, or slightly less, would provide a better environment for the world. The birth rate must decline or the death rate increase.

As never before in history, man now has the capacity to shape his environment to his need, even to his whim. When the magnitude of his works is coupled with his penchant for viewing one purpose at a time, wide scale unforeseen results occur. For example, earthquakes occurred when the reservoir for the Karib Dam in Africa was filled. In our own country, earthquakes in the Denver, Colorado, area were at-

tributed to the underground disposal of liquid wastes, lubricating old faults.

When the Welland Canal was built, lampreys (eels) entered the upper Greak Lakes for the first time. Valuable commercial fish were killed off. In the absence of natural predators, the alewives population grew to exceed the capacity of the environment with the end result of thousands of smelly dead fish on the beaches of Lake Michigan.

A scientist discovered a chemical toxic to insects that was very persistent and would kill for a long period of time. For this, and because of the lives saved by killing disease-carrying insects and increasing food production, he was later given a Nobel Prize. The chemical was DDT. Its best attribute, non-biodegradability, is now a cause for concern about its indiscriminate use.

You are all familiar with the story about detergents and the nutrients, nitrates and phosphates, that overstimulate algae growths. Most recently, the desperate search for alternatives almost led to the introduction of substitutes that could have had even more serious effects.

We are now beginning to see some unexpected results from the building of the Aswan Dam in Egypt. The loss of the natural fertility resulting from the flooding of the lower Nile is resulting in lower crop yields. The manufacture of chemical fertilizers, which requires large amounts of energy, is being expanded to offset this loss. Irrigation, coupled with poor sanitation, has led to a marked increase in schistosomiasis. In addition, marked changes in the marine ecology are occurring at the mouth of the Nile.

I am certain that the first TV set sold was carefully designed to prevent ionizing radiation. Later, when it was desired to reduce weight for portable models, it was a simple matter to do this by merely reducing the shielding. Certainly, the designer was knowledgeable about physics and ionizing radiation, but the criteria given him must have omitted stressing safety of the product.

At one time we fireproofed steel construction members by encasing them in two inches of concrete. Spraying with asbestos, however, provided fire protection and was cheaper. Now we know that a worker exposed to asbestos sprays who smokes is almost certain to develop lung cancer, but we hear anguished cries about what prohibited regulation will do to the industry. Whatever happened to the persons and industry that used to encase the steel in concrete? One might conjecture that it is all right to force a person out of work in the interest of profit, but not of health.

The complexities of current environment issues are illustrated by the controversy surrounding the production and use of energy. The present world population could not be sustained without the use of vast amounts of energy for fixing nitrogen for chemical fertilizer. Our quality of life and our urban societies require energy for food preservation, transportation, communication, biomedical engineering, heating,—yes, even air conditioning to relieve heat stress.

High efficiency in waste treatment requires energy. Complete recycling of wastes will require even more energy. Yet, the mining, processing, transportation and use of fuels of all types result in pollution to the environment. Nuclear reactors appear to be the best means of meeting energy needs while preserving environmental quality. Gasification of coal also offers promise in future years.

Faced with this array of diverse and complex problems, one might well ask, "Where do we go from here?"

The proposals I am about to advance are not original, but I offer them for your consideration.

First, there needs to be an environmental ethic established by our society.

A few years ago, the Western Electric Company brought a group of engineering deans together to suggest that environ-

mental quality become an essential criteria for design. This would mean that the mechanical engineer's job is not complete so long as the engine he designs pollutes the air, nor the chemical engineer if his plant pollutes the air or water. Even the highway engineer would consider something besides a straight line. We need specialists to be concerned with environmental quality, but the Western Electric point of view was that other engineers, not aware of environmental criteria, could create problems faster than the specialists could ever correct them.

Part of this environmental ethic would require a new system of accounts. I do not believe that social values can always be measured on a dollar balance.

In this regard, I am greatly encouraged by the new federal legislation which requires an environmental impact evaluation for federal projects. Used properly, this legislation could do a great deal to protect our environment.

Second, we need to engage in comprehensive planning for environmental quality. Present approaches, at best, may be characterized as fragmented incrementalism. Comprehensive planning is easier to talk about than to do. Where does one begin? It seems to me that intervention has to be aimed at those things which can be modified. Such things as geology, that is, mineral deposits, foundations for buildings, faults and aquifers; soil characteristics, such as fertility, moisture retention, and sorption capacity; topography, including slope, elevation, and flood plain; and meteorology, especially inversions, are factors not readily modified. Consequently, comprehensive environmental planning should start with land-use planning based on these factors. The transportation system is a most important factor which is difficult to change, once established, and helps to determine land-use potential. The density of sources of pollution may ultimately be regulated through land-use controls.

In past years, zoning has been a form of land-use control employed to segregate dirty, smelly, noisy, and unsightly industries. Such isolation is archaic and no solution to today's environmental problems. In fact, a good case could be made for locating industrial plants within walking distance of residences if they are designed with environmental quality in mind.

My third approach would be to require manufacturers to be responsible for the safety and environmental impact of their products. I favor the legislation currently being proposed in many states to consider the waste which the product causes and its degradability if loosed in the environment.

A fourth factor is the way we organize our society. Because of myths about the value of the town meeting to democratic government, we find a multiplicity of local governments in an area, such as Philadelphia, none capable, by itself, of regulating the sources of its environmental problems. Even the City of Philadelphia cannot completely control its air quality because of sources outside its limits. In our case, the problems are not wholly within a single state. Yet, we seem to be able to cooperate on any basis only rarely, and then only for special purposes which defy coordination in any truly comprehensive environmental program. We must find innovative government institutions to handle these problems, or we will find all such decisions gravitating to the federal level. Some of the regional models in the San Francisco Bay Area of California are worth considering.

My fifth point has to do with the future design of urban areas. We need to identify those environmental qualities which stimulate creativity, maximize the development of human potential, and add to the social and cultural attainments of individuals. Unfortunately, there appears to be a danger that our single-track minds seem bent upon finding a mass production solution for everything and everyone. The human mind develops from the stimulation of variation, and much of the sameness that is being built

today is, to me, stultifying. We must find a way to solve environmental problems which also permits individual cultural expression, which is necessary for human satisfaction.

My final suggestion is based upon the fact that we operate under a capitalistic system. I propose that the investment banking community begin making environmental impact evaluations before it commits funds to private ventures. While I think it is good business sense to do so, we should not forget that our great corporations are social institutions established for and by society. Social institutions endure so long as they serve the needs of society.

Before you brand this as a radical idea, let me relate some experiences. Not long ago, a representative of the banking community of a free European country visited the U. S. to see what our bankers were doing about the environment. This left some of our local people speechless, but the visitor did report that Chase Manhattan had environmental consultants to evaluate projects for them. At about the same time, I was trying to employ an ecologist, only to find that he had just accepted a job with the World Bank.

Such an attitude throughout the banking community would be far more effective than government regulation. I was once faced with a problem of a real estate developer who was going to build septic tanks in an unsuitable area, even though sewer mains were on both sides of his subdivision. He could not be dissuaded and I was powerless because the laws were enforced by another department which had given him all the required permits. I found out who was banking his venture and told him about the problem. The next thing I knew, the plumbing inspector, city engineer, city solicitor, and even the mayor wanted to know why the developer wanted my approval when he had all the approvals the law required. The city solicitor even agreed that it would be illegal for me to issue any official approval. Needless to say, the developer put in sewers.

Well, I have outlined some of the urgent environmental problems we face. I have also indicated some approaches which I think may lead to a better environment and quality of life. My feelings may be summarized by two quotations: In one, Dr. Bronowski (1962) said,

> "I am not the first prophet, or the first dreamer, to hope that the monstrous cities of today, like glaciers of an industrial ice age will begin to melt away,... there is no special virtue in agriculture and no special evil in industry. What is wrong is a by-product of the way we organize our industries in large towns—the tedium of traveling two hours a day, the exhaustion of crowded canteens, the division between factory or office work at one end of the journey and dormitory leisure at the other, the lack of community."

The other quote is from the *History of Civilization* by Will Durant. In it he says,

> "Civilization suggests the city. For in the city are gathered, rightly or wrongly, the wealth and brains produced in the countryside; in the invention and industry multiply comforts, luxuries, and leisure; in the city traders meet and barter goods and ideas; in that cross fertilization of minds at the crossroads of trade, intelligence is sharpened and stimulated to creative power. In the city some men are set aside from the making of material things, and produce science and philosophy, literature and art. Civilization begins in the peasant's hut, it comes to flower only in the towns."

Dr. Richard Brookes: 18th-Century British Compiler of Books on Medicine, Geography and Natural History[1]

By FRED B. ROGERS, M.D.[2]

SURPRISINGLY little is known about the career of a medical writer whose chief biographical notice (1) appears in the *Dictionary of National Biography* (London, 1886).

"*Brookes, Richard* (*fl.* 1750), physician and author, has left but slight memorials of his life, except numerous compilations and translations on medicine, surgery, natural history, and geography, most of which went through several editions. He was at one time a rural practitioner in Surrey (Dedication of *Art of Angling*). At some time previous to 1762 he had travelled both in America and Africa (Preface to *Natural History*). He was an industrious compiler, especially from continental writers, and his 'General Gazetteer' supplied a manifest want. . . ."

The Richard Brookes cited above is a mysterious figure, not only because of almost no contemporary or later accounts of his life, but also because he has been confused with at least three other writers whose works were published during the 18th Century. To clear the ground, these men are cited briefly.

The University of Edinburgh, Scotland, conferred an M.D. degree (2) on "Radolphus Brookes, A.M., Anglus," on "Mai 18, 1721." In the same year there was published at London a 47-page pamphlet by R. Brookes, M.D., 'A History of the Most Remarkable Pestilential Distempers'. Dr. Ralph Brookes, Englishman, also is credited with translating from the Spanish a picaresque narrative by Thibault (Governor of Talmont), 'The Life and Adventures of Pedrillo del Campo' (1723) (3). The Rev. Richard Brookes, M.A., Rector of Ashney in Northamptonshire, England, translated 'The Natural History of Chocolate' from the French of Quélus (1730), and the 'General History of China', by the Jesuit Père Jean Baptiste Du Halde (1736). Parson Brookes died in 1737, according to Musgrave's *Obituary Notices Prior to 1800*. An American physician, Dr. Richard Brooke (1716–83) of Prince George's County, Maryland, wrote scientific communications which appeared in the *Philosophical Transactions* of the Royal Society of London in 1752 and 1759, plus several other items published in the *Gentleman's Magazine* of London. His visit to that city "2 or 3 years ago", and his investigating the medicinal effects of corrosive sublimate were mentioned in the preface to the third edition of Brookes's *General Practice of Physic* (1758). Dr. Brooke was elected a member of the American Philosophical Society in 1769, and five years later became a delegate to the colonial Maryland Assembly.

The antecedents, date or place of birth and death of Dr. Richard Brookes remain unknown. There is no mention of him in the many volumes of *Nichols' Literary Anecdotes* of the 18th Century, which has something to say about even the most obscure writers of that era. Where or when he received his medical degree is also unknown. On April 15, 1761, Dr. Brookes was named with Dr. James Kirkpatrick as sponsor of William Charsley for the latter's M.D.

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at the University of Aberdeen, Scotland (4). Brookes's literary collaborator, physician-author Oliver Goldsmith (1728–74), mentioned a son who helped his father with the drawings for the *Natural History,* and the London publisher John Newbery paid Mrs. Brookes a royalty after her husband's death which occurred prior to August, 1763. No portrait or other likeness of Brookes is known to exist today.

Lacking biographical details, we turn to the many writings by Dr. Brookes for their chronology and content. In 1740, the first edition of his book, *The Art of Angling, Rock and Sea-Fishing: with the Natural History of River, Pond and Sea-Fish,* was published by John Watts in London. It was dedicated "to Richard Heath, Esq., of Hatchlands in the County of Surrey", and signed "R. Brookes" only at the end of the dedication. Subsequent editions carried this name with M.D. degree on their title pages. In this work, illustrated by 133 woodcuts, the author stated, "As to the Drawings . . . they were all, except one or two, done by myself: I can only assure the Reader, that the Shape and Proportion of the Fish are all carefully preserved, and that the Original Prints were done immediately from the Life." This volume also included a concise dictionary on baits, lures, rods and lines.

The accounts of "the great Variety of Watry Inhabitants", exhibiting according to Brookes, "the Wisdom of the Divine Architect", are rather fanciful and bold in style. Several of these quaintly-phrased descriptions will illustrate the tone.

Cod: "The chief support of the Cod fishery are the Banks of *Newfoundland,* which are a kind of submarine mountains, one of which, called the Great Bank, is four hundred and fifty miles long, and an hundred broad. . . . When *Lent* begins to draw near, though the Fisherman have caught but half their cargo, yet they will hasten homewards, because the markets are best at that time . . ."

Fig. 1. Fly fishing, with fishhooks dressed to suggest insects. Engraving facing title page of *The Art of Angling,* 5th ed.; Dublin: J: Beatty, 1778.

Dolphin: "They will live three days out of the water, during which time they sigh in so mournful a manner as to affect those with concern, who are not used to hear them . . ."

Shark: "If ships in the Guinea trade happen to throw a dead slave overboard, there are seldom wanting three or four Sharks to tear him to pieces in an instant."

Trout: "Trout generally delight in the cooler and smaller rivers, which descend from the hills and rocky mountains; and they seem to take a pleasure in striving against the stream. It is really wonderful to see with what force and agility they will surmount all difficulties in travelling to-

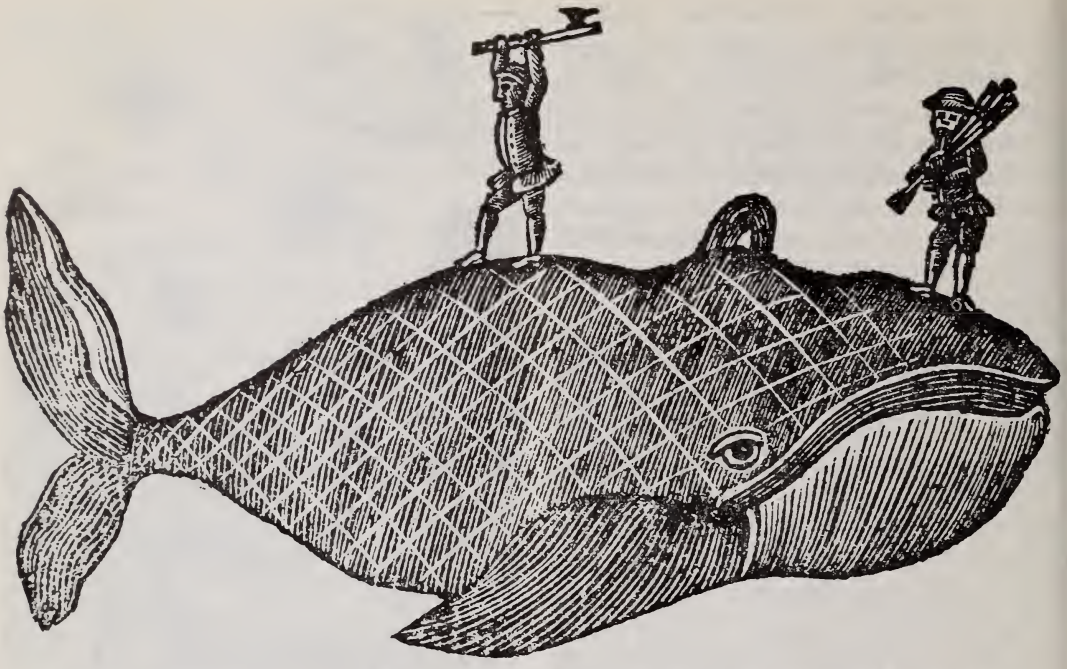

FIG. 2. Woodcut depicting a whale, topped by bagpiper and flayer. From *The Art of Angling*, 5th ed; Dublin: J. Beatty, 1778, p. 292.

wards the source of rivers, let their descent be ever so rapid. And several authors tell us, that they are found among the *Alps*, in waters so very cold, that no other fish can live therein."

Whale: "On the Top of the Head, and before the Eyes, is placed what they call the Hovel, or Bump, in which are two Spout-Holes. Out of these Holes he blows the Water so very fiercely, that it roars like a hollow wind, or an Organ-Pipe. It is so very loud that it may be heard at the distance of a League, and when the Whale is not to be seen by Reason of the Foggy Air. He blows out the Water the fiercest of all when he is wounded, and then the Noise resembles the Roaring of the sea in a great Storm."

The Art of Angling proved a popular book, going through at least eight editions over a sixty year period (5).

Brookes's next printed work appeared in 1751. This was an ambitious compilation, entitled *General Practice of Physic; extracted chiefly from the writings of the most celebrated practical physicians, and the medical essays, transactions, journal and literary correspondence of the learned societies in Europe.* Published in two volumes by John Newbery in London, it concluded with a section on differential diagnosis, a 'Syllabus of Symptoms'. Seven editions of the *General Practice of Physic,* little altered in text, appeared through the year 1777.

A single volume 536-page version of the larger *General Practice of Physic,* called *An Introduction to Physic and Surgery,* came from Brookes's pen and Newbery's press in 1754. This compendium omitted the terminal 'Syllabus of Symptoms' of the parent book. It was published in a second edition in 1763. (The publisher John Newbery [1713–67], who has been dubbed the "father of children's books," was described by Goldsmith in *The Vicar of Wakefield* as "the philanthropic bookseller in St. Paul's Churchyard, who has written so many little books for children; he called himself their

friend, but he was the friend of all mankind.")

Another tome of Brookes' was published by Newbery "at the Bible and Sun, in St. Paul's Church-Yard," London, in 1753. Its full title was *The General Dispensatory, containing a translation of the pharmacopoeias of the Royal Colleges of Physicians of London and Edinburgh, together with that of the Royal Hospital of Edinburgh, from the last edition. To which are added the doses, virtues and uses of the simples as well as compounds, and in what cases they are attended with danger, with a design to render the practice of physic more safe, easy and successful.* This dispensatory, culled from Latin texts, underwent a second edition in 1765, and a third one eight years thereafter.

Dr. Brookes's best-known assemblage, *The General Gazetteer,* illustrated with woodcuts and folding maps, was first published by Newbery in 1762. In the preface to this *General Gazetteer: or Compendious Geographical Dictionary,* Brookes wrote:

"The discoveries that have been made of late years in different parts of the globe, and the various settlements and emigrations in consequence thereof, render the old systematical writers of little or no use; especially as they had very little knowledge of the places they treated of, and have stuffed their books full of absurd and monstrous stories, the natural offspring of the credulity of those times. . . .

"Here you will find no selling of winds, no diabolical conjurations, no nations of cannibals or meneaters; nor indeed anything else that is shocking to common sense, or evidently repugnant to the customs and practices of other parts of the world."

Many editions of this informative work, modified in the title and contents by various hands, appeared over the next century. Presses in England, Scotland and Ireland printed these handy volumes. A seventeenth London edition was issued in 1819.

The first American imprint of Brookes's *General Gazetteer* was published by Jacob Johnson & Co. at Philadelphia in 1806. A second edition was issued at Philadelphia and Richmond six years later. This was reissued at Baltimore in 1815, and, "improved" by Jedidiah Morse, at Boston in the following year. (For this volume and others, the clergyman Jedidiah Morse [1761–1826] became known as the "father of American Geography.") Third and fourth editions, compiled by the geographer William Darby (1775–1854), were printed at Philadelphia in 1823 and 1827. Darby substituted his own material so freely that "Darby's edition" bore little resemblance to the British original.

A greatly expanded version was published by W. W. Reed at New York City in 1832. The lengthy title of this 924-page tome, illustrated with 200 engravings, was, *A New Universal Gazetteer, originally compiled by R. Brookes, M.D. The whole remodelled and the historical and statistical department brought down to the present period, by John Marshall, Esq., with numerous additions by the American editor, including the population of the United States for 1830; a description of the various Indian tribes in North America; and a view of the missionary stations in all parts of the world, and containing a brief description of commerce, giving an account of all the moneys in the known world, and all the minerals, vegetables, animals, birds, fishes, and insects, that are important to commerce; all the chief commercial and monied institutions and associations; and notices of manufacturers and commerce in different places and countries throughout the globe.*

John Marshall (1783–1841), American encyclopedist, a compiler in Brookes's tradition, also completed a subsequent edition of the above work. It was published by E. H. Butler at Philadelphia during 1843–44, and contained data from the 1840 Census of the United States.

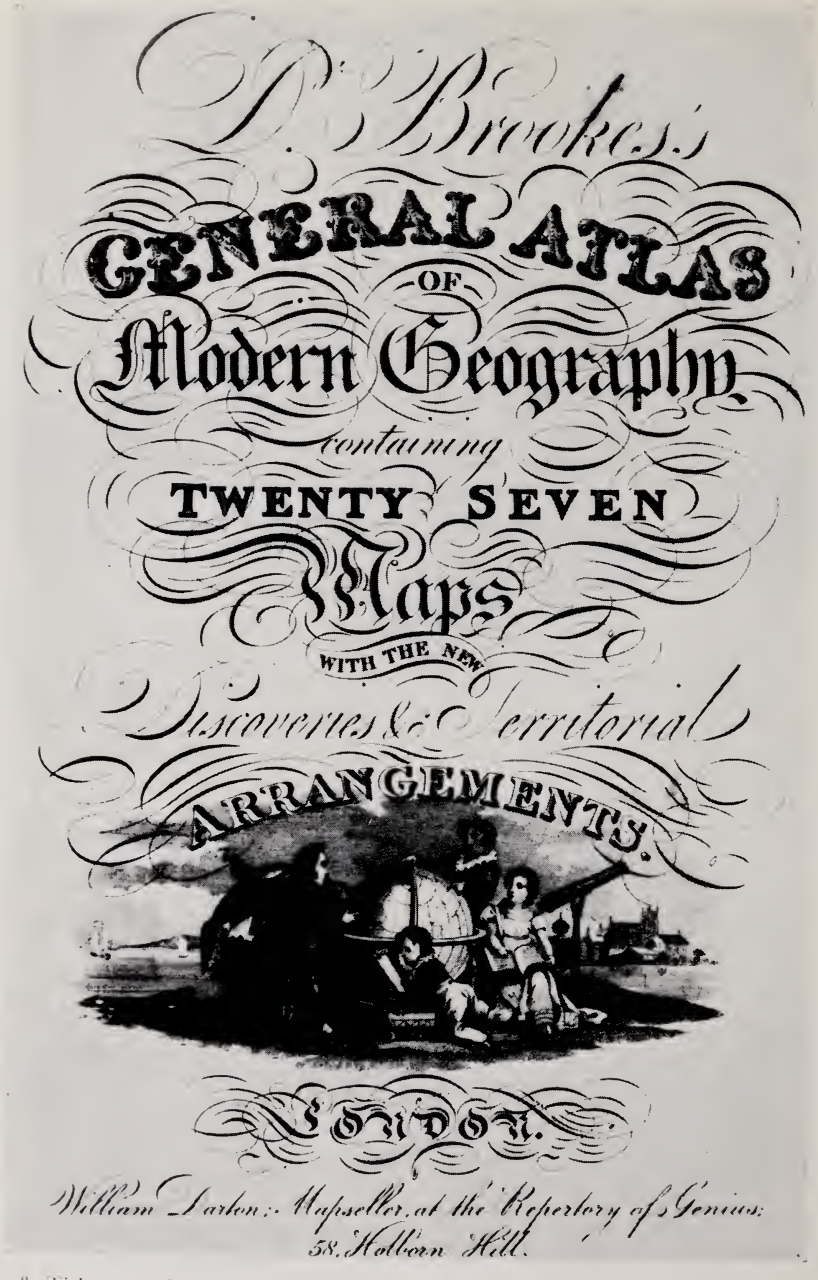

FIG. 3. Title page of a geographical atlas derived from Dr. Brookes's gazetteer (*circa* 1812).

The realm of nature also attracted Dr. Brookes's attention and he compiled a comprehensive survey based on his own and others' research. *The Life of Oliver Goldsmith*, by James Prior, tells about the collaboration of his better-known contemporary on Brookes's *A New and Accurate System of Natural History* (6).

Writing in 1837, Prior noted that Dr. Goldsmith was "employed not only to assist the author, but to revise, to recommend, and to introduce his book to more general

favour by a preface and by introductions to the chief subjects.... The advertisement (July 18, 1763) states that the whole of the work is printed off in six thick volumes duodecimo, and that on the 1st of August a volume, to be followed by one every succeeding month till completed."

Not only did Goldsmith write a preface and the introduction to the first four volumes of Brookes's *Natural History,* but he also composed notices designed to promote the work, and a review of it. At this point, the literary hack worked from both ends to the middle! In the words of Prof. Arthur Friedman (7), Goldsmith was thus employed, "not only to prepare Brookes's book for the public, but also to prepare the public for Brookes's book."

In a notice "To the Public," published in *The Critical Review* (August, 1763), Goldsmith wrote about Brookes:

"Those who have read the author's Practice of Physic, and his other medical and geographical compositions, will see evident marks not only of the philosopher but of the accurate and judicious traveller....

"He has indeed, one advantage over almost all former naturalists, namely that of having visited a variety of countries, and examined the productions of each upon the spot. Whatever America or the known parts of Africa have produced to excite curiosity has been carefully observed by him, and compared with the accounts of others.

"This work, though comprised within the compass of six volumes, has employed a great part of the author's life; and there is not a figure represented in any of the plates but what was drawn either by himself or his own son under his inspection."

Brookes's *Natural History* was the compiler's last and most extensive work. The volume titles convey its scope: Vol. 1—*The natural history of quadrupedes, including amphibious animals, frogs, and lizards: with their properties and uses in medicine;* Vol. 2—*The natural history of birds: with the method of bringing up and managing those of the singing kind;* Vol. 3—*The natural history of fishes and serpents...;* Vol. 4—*The natural history of insects, with their properties and uses in medicine;* Vol. 5—*The natural history of water, earths, stones, fossils, and minerals. With their virtues, properties, and medicinal uses, to which is added, the method in which Linnaeus has treated these subjects;* Vol. 6—*The natural history of vegetables, as well foreign as indigenous, including an account of their roots, barks, woods, leaves, flowers, fruits,*

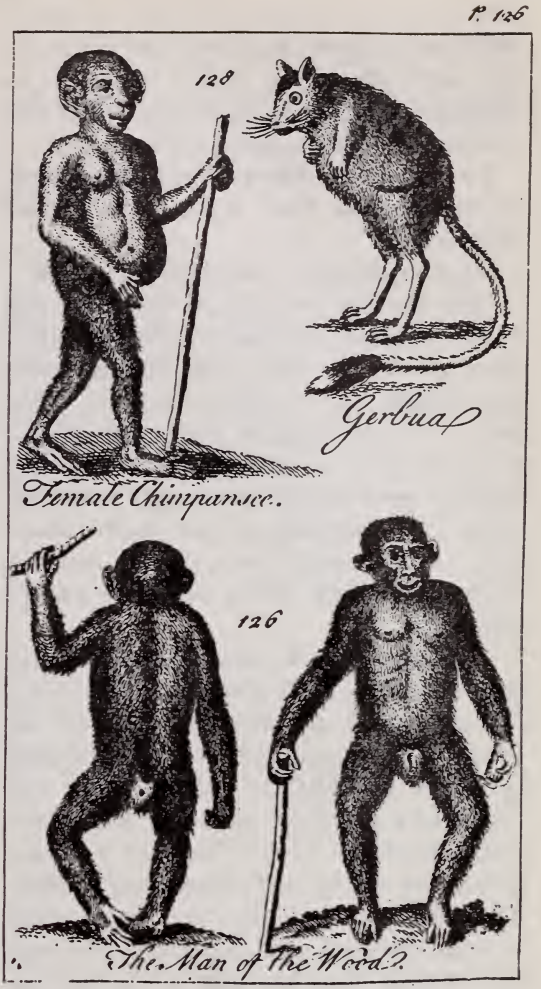

FIG. 4. Plate depicting a chimpanzee, gerbil and orangutan. From *A New and Accurate System of Natural History,* London: J. Newbery, 1763, Vol. 1, p. 126.

seeds, resins, gums, and concreted juices. As also their properties, virtues, and uses in medicine, together with the method of cultivating those planted in gardens.

To sample the flavor of Brookes's prose, several excerpts from volume one are offered below:

Of Apes, Monkeys and Baboons (p. 126)

"On the *Isthmus of Darien* there are droves of Monkeys, most of them black, but there are some white; and likewise some have beards, and others have none. They are of a very waggish kind, and play a thousand tricks as passengers march along, leaping from bough to bough with the young ones hanging at their backs. Sometimes they will make faces, chatter, and piss upon men's heads when they have an opportunity....

"The most remarkable animal of this kind is the ORANG OUTANG, so called by the *Indians,* which signifies the Man of the Wood; but by the *Africans* he is named QUOIAS MORROU, and is about the length of a boy three years old, and of the thickness of one of six. He is of a square make, very strong, and exceedingly nimble. The joints are well-knit, and the muscles so large that he is able to perform whatever he attempts. The fore part of his body is quite naked, but behind he is covered with black hair. He is like a man in the face, but he is full nosed, and his countenance is wrinkled like that of a toothless old woman....

"When tamed he will take a tankard by the handle in one hand, put the other to the bottom of it; and when he has done drinking he will wipe his mouth as carefully as any person whatever. When he lies down to sleep, he will lay his head upon the bolster, and cover himself with the bed cloaths with as much dexterity as if he had been used to it all his life time."

(The orangutan was an animal of considerable interest to European physicians in the 17th and 18th centuries, evoking comments by writers like Nicholas Tulp, Edward Tyson, and Julien Offroy de La Mettrie.)

Of Mankind (p. 136)

"Linnaeus is the first naturalist that we know of who has classed Mankind with the Monkeys, under the title of ANTHROPOMORPHA. He divides them into four parts or colours; thus he calls the *Europeans* white, the *Americans* reddish, the *Asiatics* tawny or olive coloured and the *Africans* black; but these distinctions are far from being satisfactory, therefore we shall give a more particular account of the various nations of the world, at least in general; for to treat of them all distinctly would take up more room than we can allow; to which we shall prefix a sketch of the anatomy of the human body."

In August 1763, Dr. Oliver Goldsmith wrote the following tribute (8):

"Doctor Brookes the author is now no more.... (He) ever appeared to us as one of the most industrious, useful, and accurate compilers of his age. He was one of those characters in the republic of letters who go on silently and laboriously, widening the land-marks of science, without being known to fame, or without seeming much to regard it.... These were the talents which rendered Doctor Brookes not a celebrated but a serviceable writer."

Acknowledgment

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7. FRIEDMAN, A. (ed.): *Collected Works of Oliver Goldsmith,* Oxford: Clarendon Press, 1966, Vol. 1, p. 136; Vol. 5, pp. 227, 234, 380.
8. Ref. 7 *supra,* Vol. 5, p. 233.

The Wistar Party and The College of Physicians of Philadelphia[1]

By W. B. McDANIEL, 2d[2]

I WOULD warmly recommend an honorary doctorate in graduate education for any of you inclined to characterize as intrepid this attempt to relate the story of The College of Physicians of Philadelphia to the interests of the Wistar Associates; but, most of us, of course, are called upon on occasion to demonstrate a measure of our intrepidity—so here we go on this occasion.

The official birthday of the College—following pregnancy complications not unusual in organizational births—was January 2, 1787. Of the twelve senior founding Fellows—including such historically important figures as Benjamin Rush, John Morgan, William Shippen, John Jones and Adam Kuhn—nine had been for two decades or more members of your parent organization, the American Philosophical Society, while another was elected to its membership in 1794. Of the two who appear not to have held membership in the APS, one was Abraham Chovet, the "Perfect Original," whose wit and wisdom, seemingly highly compatible with those associated with the Wistar Parties, were recalled two evenings ago in a paper read before our Section on Medical History in Thomson Hall, across the way, though it was published a little earlier in the April, 1971, issue of the College's *Transactions & Studies.* Of the twelve founding junior Fellows, only six appear to have been honored by membership in the American Philosophical Society.

Your patron saint, Dr. Caspar Wistar, was elected a Fellow of the College in April, 1787, three months after its official birthday and three months before his election to membership in the APS. He served as a College Censor (an office currently held by one of our distinguished hosts, Dr. Jonathan E. Rhoads, a former President of the College) from December, 1793, until his death in January, 1818. Our replica of the Bass Otis portrait of Caspar Wistar is temporarily hanging in this room [Cadwalader Hall], thanks to the courtesy of Mr. Charles E. Ingersoll (a fellow guest this evening), the College's Executive Director, and Mrs. Elizabeth Moyer, Curator of our Mütter Museum and Custodian of the College Collections.

Our library's card catalogue naturally lists a number of interesting items under Wistar's name, a few of which may briefly be referred to as follows: 1., his Edinburgh dissertation, 1786, entitled, *De animo demisso.* An article by William D. Sharpe based on it and entitled, "Caspar Wistar on Depression, 1786: An Eighteenth Century Psychiatric M.D. Dissertation" was published in our *Transactions & Studies,* April, 1964. A copy of Dr. Sharpe's working translation is also in our files. Incidentally, some of the bibliophiles present will doubtless have spotted in a Netherlands dealer's current catalogue a copy of the original edition offered at $22.75, a modest price, it may seem, in this era of high-flying antiquarian costs; 2., an undated autograph Bill presented to the Senate and House of Representatives of Pennsylvania; 3., several ms.

[1] An after-dinner address delivered at the Wistar Party held at The College of Physicians of Philadelphia, 28 October 1971. The Party's hosts were Jonathan E. Rhoads, M.D., and Joseph Stokes, Jr., M.D., Wistar Associates and Fellows of the College.

[2] Curator of the Library's Historical Collections, The College of Physicians of Philadelphia, 19 South 22nd Street, Philadelphia, Pennsylvania 19103.

lecture notes and holograph letters; 4., a photostat negative, "Phila. 1800?", of a list of members of The College of Physicians and of physicians who were not members invited to the Wistar Parties by C. Wistar.

We may now venture to remind ourselves that the second home of the College was a rented room in the Hall of the American Philosophical Society. The College was there ensconced from 1791 to 1845. Relations would appear to have been mutually amicable, which renders rather surprising, therefore, the discovery that when the Wistar Association was born, shortly after Wistar's death in 1818, only one of the College's Fellows appears to have been a founding father of the Association. This was Thomas C. James, who was elected a Fellow of the College in 1795 and served as its President for a few months in 1835, just prior to his death; he was elected a member of the American Philosophical Society in 1797 and served on its Council from 1802 to 1821.

In 1821 two noted Philadelphia physicians became Wistar Associates: Nathaniel Chapman, a Fellow of the College, who was later elected the first President of the American Medical Association; and William Potts Dewees, a prominent obstetrician who, strangely, was not a Fellow of the College. Handsome portraits of both, by Thomas Sully and John Naegle, respectively, may be viewed in the Hutchinson Room.

Since then, ardent cultivators of Wistarian interests include the following past presidents of the College, in addition to those already mentioned: George B. Wood, Alfred Stillé, D. Hayes Agnew (a provocative surname in this day and age), J. M. Da Costa, James C. Wilson, W. W. Keen, Alfred Stengel, who served as your Dean in 1938–39, and Francis R. Packard, whose "History of the Wistar Association; Wistar Party" (prepared and published with the cooperation of Adolf George Rosengarten in 1945) brings practically to an end my knowledge of the College-Wistar hierarchy.

The College, which opened school, so to speak, with twelve senior and twelve junior Fellows, as stated earlier, now has 1,153 Resident Fellows, 173 Non-resident Fellows, six Honorary Fellows, including three whose names are household words to you (Whitfield J. Bell, Jr., George Washington Corner, Richard H. Shryock), and four Honorary Associate Fellows. Institutional male chauvinism began to decline in 1932, when the late Dr. Catherine Macfarlane became the first woman physician elected to the fellowship. Subsequent progress in this direction is evidenced by the fact that the present Vice President (president-elect) is the distinguished Dr. Katharine Boucot Sturgis.

Normally monthly meetings of the College as a whole, which are open to the public, are held in the autumn, winter and spring, a number of endowed lectureships providing speakers (generally, non-local) and subjects of current medical and sociological interest. These meetings are held in the main meeting hall on the second floor, which bears the name of one of the most famous presidents of the College, S. Weir Mitchell. In addition, the College's Sections on Ophthalmology, Otolaryngology, Medical History, and Insurance Medicine (this last one quite recently organized) hold frequent meetings, also open to the public, in the halls on the main floor—Cadwalader, our home this evening, and Thomson Hall across the way. These halls also serve as meeting places for a number of other local societies with medical or paramedical involvements.

The College has been, since its late 18th-Century childhood—except for a few brief periods of abstraction or lack of resolution—actively concerned with affairs capable of improving or upgrading the physician-physician and physician-patient relationships. Culturally, for well over a century

its *pièces de résistance* have been, and of course continue to be, its library and its Mütter Museum, the latter of which is happily open for your inspection this evening, thanks to the generous cooperation of its Curator. Dr. Thomas Dent Mütter, chief father of the Museum, a professor of surgery at the now re-named Jefferson Medical College, was elected a Fellow of this College in 1836, became a member of the American Philosophical Society in 1851 and a Wistar Associate in 1852. A handsome portrait of him may be seen on the right-hand wall as you enter the museum. Keeping it in mind may help to dilute any macabre emotions engendered when you pause before some of the Museum's scientifically-oriented treasures.

The library was started in 1788 by a donation of books from its celebrated cofounder, John Morgan. For many years in the present century it was open to the public six days a week, with additional evening hours on two of the days. Its current status, however, as the national Mid-Eastern Regional Medical Library has so drastically increased expenditures that it has, to our regret, been found necessary to reduce the number of its open days to five (Monday through Friday), with evening hours eliminated. Its services include, in addition to intra- and extra-mural circulation of books and journals, photocopy service, MEDLARS (medical literature analysis and retrieval systems), reference service and medical documentation service.

The library is located on the second floor and a part of the third, with an adjoining seven-floor stack-wing. To the left, as you reach the mountain top, is the Norris Room, containing a large number of the library's 3,212 currently-received periodicals; and, at its west end, the Packard-Krumbhaar Historical Alcove, which houses secondary historical materials and the historical staff. The Norrises here commemorated are your one-time Wistar Associates George W. and William F. Norris; while the historical Packard is, of course, your and our Francis R. Packard, already mentioned; an off-limits Packard Room also commemorates him and other members of his family. His Alcove-mate was another former President of the College, Dr. Edward Bell Krumbhaar, eminent pathologist, editor and medical historian who, like Dr. Packard, made extensive and invaluable contributions to the historical collections. Across the hall, at the top of the stairway, is the Ashhurst Room, named for Dr. John Ashhurst, Jr., one-time professor of surgery at the University of Pennsylvania and also a former President of the College. This is characterized tersely as the circulation and reference room. Also on the library floor is the Wood Room, containing the personal libraries of our already-mentioned one-time President George B. Wood (who became a Wistar Associate in 1836) and Horatio C. Wood.

The library as a whole contains 423 incunabula, of which a catalogue has been published; 1,346 major manuscripts, an analytic catalogue which is now being compiled under the aegis of the Associate Curator, and Cataloguer, of Historical Collections, Mrs. Lisabeth M. Holloway, thanks to a grant for the purpose from the American Philosophical Society. There are, further, 243,307 accessioned and catalogued items in the broad field of medico-sociology; 10,313 accessioned pamphlets; 2,000 letters, autographs, etc.; and more than 5,000 engravings and photographs. A portrait catalogue, now containing over 80,000 cards, also includes reproductions in current books and journals.

Hopping back down the stairs now, and not unmindful of the languid gaze of the mid-way statue of Aesculapius, we find ourselves where, in fact, we are—in Cadwalader Hall, named for Thomas Cadwalader, a friend of Benjamin Franklin and ancestor

of the Thomas Cadwalader who became a Wistar Associate in 1827. This Hall was originally furnished by Mrs. S. Weir Mitchell, *née* Mary Cadwalader.

Across from us is the again already-mentioned Thomson Hall, commemorating Dr. William Thomson, a Fellow of the College who was professor of ophthalmology at the Jefferson Medical College and a member of the American Philosophical Society. As you enter this building (which was dedicated in 1909), directly to the right is a narrow hallway leading to the offices of the Executive Director and the financial staff; directly to the left, as you enter, is the office of the Executive Secretary and the Hutchinson Room, in which may be seen the Abbe Cabinet, displaying interesting medical memorabilia, and among other portraits those of Nathaniel Chapman and William Potts Dewees, mentioned earlier. The Hutchinson Room commemorates Joseph Hutchinson, a co-founder of the College, and James H. Hutchinson, a descendant and one-time Vice President of the College. One passes through the Hutchinson Room to reach the Gross Room, which houses a part of the remarkable library of the great surgeon Samuel D. Gross, a Fellow of the College, naturally, who became a member of the American Philosophical Society in 1854 and a Wistar Associate in 1860. Upstairs and down, you will have gathered, I hope, there are on display many oil portraits, engravings and sketches of both medico-historical and artistic interest.

This crude demonstration of intrepidity herewith comes to an end, with the assurance that every member of the College's large staff known to this culprit seems to have been successfully inoculated with the motto of the College: *Non sibi sed toti.*

President's Report to Council, 1971*

By GEORGE I. BLUMSTEIN, M.D.

THIS is the initial report, under a newly suggested format, that allows the President to present his program to Council at the start of a new year of activities and publish the results in the *Transactions & Studies* at the end of the term. Although this code was not in effect at the start of the 1970–71 season, a program was presented to Council for consideration. Many of these modifications and innovations have been implemented as a result of your actions. For this loyalty and support, I would like to thank each of you personally and also in the name of the College. The draft that I present today is less of a blueprint and more of a think-tank than that of a year ago, although the embryos of some definite projects are contained in it. Inherent in this presentation is a challenge to you, the Council, to decide what the College is or should be and to delineate and clarify the areas of interest for which positions or actions should be taken.

The President is the usual source of information to committees and constituents regarding the aims and purposes of the organization if they are not clearly set forth in its Charter. Now, in our 184th year, the aims and purposes set forth in the original Charter seem like vague generalities, too indefinite to serve a useful function in today's complicated society. Several fortuitous circumstances have tended to accentuate our deficiencies in this area to me during the past year. The first was the advent of a new Executive Director whose profound and searching questions about the functions of the College made your President feel most uncomfortable at times because of his inability to supply a detailed and satisfactory reply. One could recite, as I did, the many accomplishments that gave the College its prestigious position among medical organizations, but it was difficult to identify activities that were sustaining this dominant position. For answers that were not immediately available the advice of the Planning Committee was sought. Here again one could sense a certain lack of direction as the institution sought new and brighter images. Target areas of activities and interest could be identified, but a certain degree of vagueness and uncertainty existed on whether the College should get involved in anything but pure medical matters. In today's complex world, taking a stand on a problem or formulating policy and recording such actions in the appropriate minutes is hardly enough to assure results or warrant accolades. One need only gaze about to realize that seldom is anything gained today without vigorous campaigning and much publicity, or, as Goethe so eloquently said, "That which is inherited is seldom possessed until it is earned." We have inherited a venerable institution that was in the forefront of medical matters in its early days, actions that brought fame to the College and to those who helped implement them; but, society has become extremely complex and there are few pure medical problems remaining that are not being taken care of by one or another branch of organized medicine. Today, we are faced with problems that border on and are partially medical in nature but also involve law, religion, sociology, economics and politics. As we continued to delve into the matter, certain themes became repetitious. The most persistent: What is the College besides a library? What are its purposes and goals? What does it really stand for? What is it presently doing? What should it look like in the 1980s? Many

* Presented to the Council of The College of Physicians of Philadelphia, 21 September 1971.

members of the Planning Committee felt that we should avoid areas that might be in conflict with the primary interests of the County Medical Society; others felt that we should limit our activities to academic matters and leave the socio-economico-political aspects to the County; the balance felt that no clear delineation could be made and that circumstances might arise that would require the College's entering any of the aforementioned fields as co-sponsor with other agencies.

Not being entirely satisfied with the responses, a visit was made to our sister institution, the New York Academy of Medicine, to see how they were faring in this respect. Here again, we found a major medical organization groping for new projects and images and treading cautiously on the revolutionary social changes that threaten to alter radically the future structure of medicine at all levels. It should be mentioned that the Academy is different from the Colloge in several respects, aside from its internal structure which consists primarily of four committees, namely Library, Public Health, Education, and Medicine in Society, each of which have from 22 to 49 members. First, it derives two thirds of its income from its $28 million dollar endowment and is not so dependent, beholden or accountable to its Fellowship as we are; secondly, most of the planning is done by the fulltime staff who are also responsible for its implementation with very little guidance from or consultation with its Council or Committees. In their search for new fields of endeavor or responsibility, the Academy has been more adventuresome than the College. They were instrumental, in conjunction with the medical schools in New York City, for setting up a separate corporation to run the regional medical program which is housed in their building; they have taken a position on the abortion question and actively campaigned for its approval; they are in the midst of setting up a new section on medicine and law fashioned after the Boston model under Dr. William J. Curran. Aside from this, they concentrate their educational efforts on seminars, publications and support of specialty sections, the latter supplying the main thrust for numerous scientific meetings and activities occurring under their auspices. Parenthetically, it should be mentioned that they consider themselves as the home base for non-medical school-affiliated practicing physicians in their area. Their internal structure consists of 17 sections and 3 affiliated societies, all of which operate independently of the parent body, contribute little or nothing towards its support and are not represented on its governing board.

With this background, the Planning Committee under its new chairman, Dr. William Blakemore, has been attempting to reexamine, identify and update areas of activities that would sustain the health and vibrancy of the College. It became evident from the beginning that unless we had a program and a mission we would not be able to mount or sustain a campaign for support.

Thus far, the Committee has been able to identify the following items for further in-depth investigation as the basis for such a program:

1. The library, particularly the desirability of establishing a regionalized, computerized library and probably the need for a new building facility to house it.
2. Internal structure: advisability of having more and closer association with affiliates and sections.
3. Services to Fellows, such as "meet the professors" sessions or lectures on topics or trips to places of common interest.
4. Strengthening and broadening our lectureship series by raising the honorarium wherever possible to $500 until 1975 and thereafter to $1000, thereby attracting better known speakers.
5. Investigating and establishing a rela-

tionship to the community and its medico-sociological problems, such as drugs, birth control, abortions, etc.

6. Social functions and membership with consideration for a Fellowship room and a Women's Committee.
7. Publications and publicity. The College is badly in need of greater exposure to the community. There is also some doubt about the value of our *Transactions & Studies* in its present form, a matter now under investigation.
8. Fund raising at all levels to sustain these programs.

The present plans anticipate the appointment of fairly large task forces to investigate each of these areas of interest and submit their findings to the Planning Committee. Formulations of these deliberations will eventually be presented to Council for discussion and decision. Once Council sets policy in this manner, it will be necessary to consider ways and means by which these edicts may be implemented and financed for, as you shall hear later, there is great need to improve our financial picture.

I have requested Mr. Ingersoll to review and, wherever possible, streamline presentations or reports coming to Council so that there would be adequate time to allow for in-depth discussion of matters referred by the Planning Committee or other reports requiring policy decisions or changes. I also believe we should find a better way of meeting and indoctrinating new candidates. We desperately need to enlarge our Fellowship rolls and, yet, the introduction of New Fellows is at times superficial, hurried and leaves much to be desired. Some experimentation with our present procedure seems desirable, like a leisurely get-together at the conclusion of the Council meeting and some method for processing applications during the May-to-September hiatus.

Among the specific items for your consideration this afternoon will be a report on our endeavors to establish a position on the drug problem; a report of the activities of one of our affiliates, The Greater Philadelphia Committee for the Medical Pharmaceutical Sciences by its chairman, Dr. Robert Wise; and finally, Dr. Louise Gloeckner's report on the Bylaws.

All these changes augur well for the future of the College, now in its 184th year and badly in need of up-dating its Charter, re-affirming its policies and fitting them into the present-day social, educational, medical and scientific structure. It should do much to convert Council into a vibrant and vigorous body in search of new horizons for the College and add a new and exciting dimension to these meetings.

For all this and the College, the ultimate benefactor, I ask your loyalty and support.

Memoir of David A. Cooper 1897–1970*

By KATHARINE BOUCOT STURGIS, M.D.

DAVID ALEXANDER COOPER was born to Fannie Spottswood Burwell and John Downey Cooper in Henderson, North Carolina, on July 12, 1897. He attended local elementary and high schools in Warrenton, North Carolina. After two years of undergraduate work and two years of medical school at the University of North Carolina, he was graduated from the University of Pennsylvania School of Medicine. Between graduation and internship, he visited his older brother, George, in England. Dave had a small pulmonary hemorrhage during this visit but paid no serious attention to it. Despite it, the two brothers played golf at St. Andrews and at several other renowned British courses.

Toward the end of his internship at Philadelphia's Presbyterian Hospital, Dave had a frank pulmonary hemorrhage which led to the diagnosis of tuberculosis. He cured at Trudeau Sanatorium and stayed on there as a medical resident from 1923 to 1925.

This was the period of Trudeau's greatness. David Cooper caught fire from men of the stature of Lawrason Brown and Edward R. Baldwin. Dave brought to his patients the understanding and compassion derived from his own experience, together with the diagnostic and therapeutic skills he learned from his eminent physicians and teachers.

At Lawrason Brown's recommendation, Dave relinquished his surgical residency at the Mayo Clinic. En route to Hopkins to investigate the possibility of a medical residency, Dave stopped off at Philadelphia to see one of his Penn classmates, Ed Rose. Ed had been the medical resident at the University Hospital and told Dave that the residency would be available at the time Dave planned to leave Trudeau. Young Dr. Cooper never got to Baltimore; he served in the medical residency at the Hospital of the University of Pennsylvania from 1925 to 1926.

Dave had admired deeply a great Philadelphia internist who had taught him as Professor of Medicine, David Riesman. Many young physicians, subsequently to become outstanding, had been David Riesman's assistants. David Cooper was the last of that distinguished group. He and Bill Middleton always looked upon each other as brothers because of their mutual reverence for Riesman. Doctor Middleton wrote me on December 17, 1970, "My association with Doctor Riesman was as an undergraduate at Pennsylvania. I took the Blockley internship to work under him—and traded whenever possible to remain on his service. I was deeply honored when he invited me to come into his office. The Wisconsin offer came about the same time and, on his advice, I accepted. So Dave and I were 'brothers' by reason of a common 'father in medicine'."

David Cooper gave to David Riesman skill, service, and a devotion which led him to walk in his chief's footsteps—as Professor of Medicine at the University of Pennsylvania in 1956, president of the Philadelphia County Medical Society in 1960, and of the medical staff of Philadelphia General Hospital from 1964 to 1966. Dave had become

* Read before The College of Physicians of Philadelphia, 6 October 1971. Prepared and published at the request of the Council of The College of Physicians of Philadelphia.

a Chief of the Tuberculosis Service at Blockley in 1933. I served under him there from 1945 to 1956. He made weekly rounds on the wards, reviewing cases and talking with patients. His sympathy and affection for these poor folks were palpable. Dave was basically shy, but conveyed by his quiet empathy all the support patients needed to get through until his next visit. After rounds, Dave Cooper, Wayne Marshall, and I would spend hours on the sixth floor of the old Tuberculosis Building, reserved for the many professional men and women who had developed tuberculosis in the service of their patients. It was a rare privilege to make these rounds with Dave. He listened unhurriedly to the pouring out of the anxieties and anguish of the doctors and nurses. As he touched a flower or watched a goldfish in a bowl by the bed of one of these patients, somehow he conveyed to each his deep personal concern. His professional competence was outstanding. He was slow to reach a decision and recommended surgical intervention only after the most considered weighing of all factors. He had intuitive wisdom. It was difficult for him to explain the reasons for his recommendations, but house staff and colleagues alike knew the soundness of his judgment and, at day's end, came eagerly to listen to his comments. Dave never seemed to tire and was as calm and deliberate with the last as with the first case.

While he was an outstanding internist, Doctor Cooper's major interest was in pulmonary diseases. His first patient was John Barnwell, a friend from medical school days. Dave and John remained closest friends throughout their lives. John, too, specialized in chest disease, so the two men's paths often crossed professionally as well as personally.

Doctor Cooper was not only a superb clinician but an able administrator. He was Director of Tuberculosis Control for the Philadelphia Department of Health from 1941 to 1948, Chief of the University of Pennsylvania's Medical Service at Blockley from 1956 to 1967, after having served 23 years as Visiting Chief on the Tuberculosis Service. He was Chief of Medicine at Pennsylvania Hospital, and Chief of its Chest Clinic from 1935 to 1955, consultant for pulmonary diseases at Presbyterian, Bryn Mawr and Lankenau Hospitals as well as the United States Public Health Service from 1942 to 1953, and to the Veterans Administration from 1946 to 1954. He was V.A. Central Office Area Consultant in Pulmonary Diseases from 1953–66. These latter assignments were during the period when tuberculosis sanatoria were closing. Doctor Cooper was able to do a great service for some of the country's outstanding chest specialists as well as for the Veterans Administration by arranging to place some eminent sanatorium physicians in Veterans Administration posts. Dave was personally retiring but he could be effectively articulate in obtaining opportunities for those in whom he believed.

Dave Cooper was devoted to his patients and colleagues. He made hospital and house calls late into the night, never turning in for his own rest until his mind was at ease about his patients. Psychiatrists today talk a great deal about "body language." Dave was a past master at conveying a great deal by a gesture. When I called him to Woman's College Hospital to see my late husband toward the end of his 18-year long illness due to emphysema, Dave was warm and supportive to Joe but, as I walked with him to his parked car, he put his arm on my shoulder and needed say not a word. His sympathetic gesture confirmed my conviction that the end was near and that I had done all that could be helpful. It relieved me of any semblance of professional inadequacy and encouraged me to remain close by the side of my beloved patient while it conveyed to me the shared anguish of my revered teacher and friend. Thus, silently Dave conveyed healing in his touch.

Dave Cooper served on myriad boards

and committees—of the Pennsylvania and National Tuberculosis and Respiratory Disease Associations, the Trudeau Foundation, the Pfahler Foundation, The College of Physicians of Philadelphia, the American College of Chest Physicians, and the Philadelphia Division of the American Cancer Society. He was president of the Philadelphia Tuberculosis and Health Association from 1952–56. He chaired from their inception until his death the Boards of the William B. Lake Foundation from 1958 and the Measey Foundation from 1967. He served two terms on the Board of the Philadelphia County Medical Society, 1948 and 1952, and as president in 1960. He was a delegate to the Pennsylvania Medical Society from 1960 to 1968. He was instrumental in founding the Pennsylvania Thoracic Society in 1948, served as president of the Eastern Section of the American Thoracic Society in 1943, and of the American Thoracic Society in 1952–53. He was a founder of the Laennec Society of Philadelphia, a member of the American Association of Thoracic Surgery and of the Clinical and Climatological Association.

From 1943 to 1952, Doctor Cooper worked with the United States Public Health Service in the large scale studies of tuberculin status of nurses at the Hospital of the University of Pennsylvania, Philadelphia General Hospital, and Presbyterian Hospital. He participated in the studies, "Tuberculosis Among Philadelphia Diabetics" and, right up to his death, the Philadelphia Pulmonary Neoplasm Research Project. Neither of these major research projects could have been launched without his encouragement and assistance. In 1951 no one seemed to visualize the need for a long-term prospective study of lung cancer, so grants could not be obtained. When the Philadelphia Tuberculosis & Health Association volunteered to supply roentgenograms and space, Dr. Cooper persuaded a patient to pay for secretarial help, and he spent hours interviewing and referring members of the project who had suspicious chest films or symptoms. Once interested in an undertaking, Dave saw it through with stubborn tenacity.

Among the honors David Cooper received were the Distinguished Service Award of the University of North Carolina at Chapel Hill in 1959, Honorary Life Membership in the Pennsylvania Thoracic Society in 1968, and the Strittmatter Award of the Philadelphia County Medical Society in 1970, just a few months before he died. He became a Fellow of The College of Physicians of Philadelphia in 1928, served on numerous committees, as a Censor, and chaired the Joseph Newton Pew, Jr. Memorial Fund, a loan fund for residents which he had been instrumental in establishing. Dave was always interested in the needs of medical students and had helped his patient, William Maul Measey, set up a foundation and make substantial grants to medical students. Dave spent a great deal of his waning energy in his last few years interviewing each medical dean and each candidate for a grant. In 1970, the last year of his life, under Dave's aegis, 182 medical students at all five Philadelphia medical schools received major grants from the Measey Foundation.

David Cooper's lineage went back to the barons of Magna Carta and the pre-revolutionary period in his native state. He belonged to numerous hereditary societies and was an active member of the color guard of the Pennsylvania Sons of the Revolution. A handsome, distinguished gentleman, he was striking when he carried one of the revolutionary flags at a church service.

Dave was simple and unostentatious to the point of shyness. He was extremely fair, especially toward colleagues in trouble for whom he leaned over backward to open doors and gain a hearing. A member of the Bryn Mawr Presbyterian Church, Dave had strong convictions as to the principles by

which he lived. He was extremely patient, standing by but never imposing his will.

Dave married Virginia Furey in 1931 and they had three daughters: Virginia Furey Cooper, now Mrs. Robert Batchelder; Anne Spottswood Cooper, now Mrs. Philip Kniskern; and Carol Alexander Cooper, now Mrs. John L. Whalen. Dave's wife developed poliomyelitis on a Saturday and died the next Tuesday in September of 1946. He rallied from this stunning blow and, for a period, was even quieter. Dave's relationship with his three daughters was tender, understanding and responsible. It was characterized by the same consideration and deference that he demonstrated in his relationships with his patients and colleagues. About ten years after the loss of his first wife, Dave married Susan Peebles Moore, the widow of one of his patients. John Barnwell was Dave's best man. Sue was a devoted wife and, in the final years when Dave's emphysema had completely invalided him, Sue ministered to him with thoughtfulness, infinite patience and good humor.

It was ironical that Dave developed emphysema. After repeated bouts of bronchitis, his dyspnea increased rapidly and his health deteriorated rather quickly. He slipped away July 6, 1970, as gently as he had lived, with his wife, children, and his devoted student, colleague, and physician, Wayne Marshall, by his side.

The College has lost a staunch friend, a wise and gentle counsellor.

Memoir of Herbert Milton Stauffer 1914–1970*

By NORMAN LEARNER, M.D.

HERBERT MILTON STAUFFER, M.D., Professor and Chairman of the Department of Radiology at Temple University Health Sciences Center, died suddenly at his home on December 18, 1970.

Dr. Stauffer was born in Philadelphia on April 26, 1914, the son of Dr. Milton F. Stauffer and Anna Hood Stauffer. He attended public schools in Philadelphia and Temple University, where he received his B.A. degree in 1935, his M.D. degree in 1939 and M.Sc. degree in 1945 after his internship and residency in radiology at Temple University Hospital.

During World War II he served as a Lieutenant in the Medical Corps of the United States Naval Reserve and was radiologist at the Naval Base in Argentia, Newfoundland. On his return he was Assistant Professor of Radiology at the University of Minnesota from 1946 to 1949. He became Associate Professor of Radiology at Temple in 1949 and Professor in 1952.

Despite the fact that his pre-medical, medical and post-graduate training, as well as practically all of his professional life, were confined to Temple University, he was far from being a provincial man. He traveled widely, attracted residents and fellows from many countries and was honored by radiologists all over the world.

Dr. Stauffer was a splendid teacher, a fine clinical radiologist and an active and original investigator. He was never satisfied with the status quo but sought ways to improve the science and practice of his specialty. He pioneered in cardiovascular radiology and neuroradiology, including catheterization and special studies with contrast media, research on cavitation in vessels, influence of polymers on fluid flow and use of CO_2 as a contrast medium in studying the heart. He was a leader in the development of the first television stereoscopic fluoroscope and the first high speed biplane cineangiographic devices to study the patterns of blood flow through large vessels. He instituted study in the psychology of image perception and developed a program in his department in image processing by both television and optical processing techniques. Over 100 papers, most of them innovative, established his place in the science of radiology.

The Radiology-Physiology Laboratory at Temple, through his stimulating leadership, became a unique investigative center which attracted scientists from Western Europe, Scandinavia, Australia and the Orient.

Dr. Stauffer was a Diplomate of the American Board of Radiology, Fellow of the American College of Radiology, President of the Association of University Radiologists in 1963, Chairman of the Executive Council of the American Roentgen Ray Society in 1966, President of the Philadelphia Roentgen Ray Society in 1969, and at the time of his death was President-Elect of the Radiologic Society of North America. He was a Fellow of The College of Physicians of Philadelphia since 1952.

Despite all these accomplishments, Dr. Stauffer was a modest man. He was gentle and sensitive and quick to respond to the problems and needs of those around him. He loved the graphic arts and music of all varieties from Bach to Rock—but was es-

* Prepared and published at the request of the Council of The College of Physicians of Philadelphia.

pecially fond of chamber music. He was a good sailor and swimmer and played tennis and squash with the same kind of enthusiasm and intensity he put into his professional work. He had an excellent sense of humor and found rib-tickling items in situations where others found only boredom. Above all he was a kind and compassionate man.

Dr. Stauffer is survived by his wife, Joan, his son, Scott, and his sister, Mrs. Jo Stauffer Mullen of New York City.

Memoir of Theodore T. Tsaltas 1923–1970*

By GONZALO E. APONTE, M.D.

THEODORE T. TSALTAS, M.D., died on August 15, 1970, of bacterial endocarditis. Born in Greece, on September 26, 1923, he received his medical degree from the University of Athens, after which he did graduate work in chemistry at the latter institution. He came to the United States in 1952 as a Research Fellow of the U. S. Public Health Service in the University of Virginia Medical School, and continued his clinical investigations in cardiovascular diseases at the Rockefeller Institute for Medical Research. Subsequently, he completed three years of residency training in anatomical pathology and neuropathology at Bellevue Medical Center; in 1958 he came to Jefferson Medical College as an Associate Member of the Cardeza Foundation for Hematology and director of its research training program. From 1960 until his death he was Professor of Pathology at Jefferson and a full-time member of the latter department.

He had protean interests in medical research, primarily in atherosclerosis and connective tissues, but also very much in the pathophysiology and management of uremia. The latter grew from a very personal experience, for it is well known that for many years he was the unrelenting victim of chronic renal insufficiency. His studies on Weber-Christian disease, presented in 1968, apparently have elucidated the basic lesion in this disorder, defective lipoprotein lipase. Another significant contribution was his application of ultra-soft X rays to the study of cardiovascular diseases. With remarkable enthusiasm, he spent considerable time and efforts trying to emphasize throughout the country the merits and feasibility of long-term dialysis at a time when this procedure was still developing as a standard therapeutic regimen. In 1969, Dr. Tsaltas was cited for his "indomitable courage" at the annual Da Costa Oration of the Philadelphia County Medical Society. He was also honored by the government of Greece for services rendered as an advisor to the Department of Foreign Affairs of that country.

He was as superb and remarkable a teacher as he was a person and an investigator. Our memory of Theodore Tsaltas is a deep and indelible impression of an extraordinary man of keen intellect, charm, wit and inspiring enthusiasm, whose unique determination continuously evoked our respect and deepest admiration. With awesome valor, he lived as if he had been insensible of mortality and died as one who had been practiced in his death. We shall not forget him.

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Youth in Turmoil[1]

By BRUNO BETTELHEIM, PH.D.[2]

I am deeply grateful for the signal honor to be permitted to present to you the Mary Scott Newbold Lecture. I just wish that for this one hundredth occasion you would have selected a better speaker, someone who has more to say. But I shall have to do the best I can. I realize that the large number of you present is because of the cold weather—anybody who has any sense would try to secure a warm room for this evening. Dr. Camp, in his charming and undeserved introduction, reflected on the tantalizing and confusing mural which graces or disfigures (depending on the way you feel) the entrance to the Orthogenic School in Chicago. His confusion is a credit to the artist, who together with me developed the idea of presenting in abstract forms the utter chaos and confusion with which young people come to us. While the artist was very successful in depicting the confusion, he seems to have been a little bit remiss in showing the resolution and the reaching of clarity which the farthest end of this mural should represent. Obviously we are much better at recognizing chaos and confusion than we are at reaching clarity.

Some of you who might be familiar with my thoughts on youth in turmoil might be startled when I begin my remarks by saying that, while youth may be wrong in most things they say, they are right in one thing, namely, in blaming the adult generation for the trouble the youth create. In my opinion, youth (or a segment of youth) has been in turmoil since ancient times. Some of my colleagues at the University of Chicago have deciphered a Sumerian tablet of about 4000 B.C. which contains complaints about the unruliness of young people and their lack of discipline. So it seems to me that, ever since we have subjected children to the process of education, they have reacted with turmoil and confusion. But whether it becomes really troublesome to them, and troublesome to society, depends entirely on the attitudes adult society takes to this phenomenon, and in this sense youth are right when they blame us, the older generation, for their difficulties. Of course, this is nothing new. I venture to guess that just as I, when I was a young man, blamed the generation of my parents for the mess they made of the world, and, just as my parents had blamed their parents for it, this game is going to go on as long as

[1] Mary Scott Newbold Lecture C, The College of Physicians of Philadelphia, 3 February 1971, presented jointly with the Philadelphia Psychiatric Society. The lecturer was introduced by William Camp, M.D., President, Philadelphia Psychiatric Society.

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there are young and old people around. It's a nice game, but it doesn't serve much purpose.

My point is if, talking about the present situation, so many adults (and some of them the taste-makers, or those who form public opinion) wouldn't have been so beguiled and so ill-informed not to recognize the turmoil of youth as an age phenomenon which is natural, to some degree even healthy, but have made out of it something which it is not, namely, a wave of the future, a new understanding of the world, a new and clear conscience and what-have-you, then this youth in turmoil would have a much easier time finding its bearings and would not create trouble for society. They would create trouble only for themselves, as youth in turmoil always have done. They would have this particular late children's disease and then grow up into adults, who in turn will be blamed by their children for the mess they have created.

We don't have to go so far back as ancient Sumer or Athens or Rome to find examples. Remember Catalina and his conspiracy? The wandering scholars of the Middle Ages walked the streets of Europe unwashed and unkempt, singing their songs of a better world. Since then, there have come waves of youth in turmoil. For example, not quite two hundred years ago, the German poet Goethe wrote a novel called *The Sorrows of Young Werther* (*Werther's Leiden*), which started a wave of suicide among young people. There was, then, an irresponsible adult who gave youth in turmoil the wrong leadership and the result was the most widespread suicide wave in Europe among late adolescents known in the history of mankind, and this is typical when adults lead youth astray. As you know, Goethe lived a very successful life, well into his eighties, having freed himself obviously of his own revolt and disturbance by writing this and other novels, but having led astray thousands of young people who lost their lives because of him. The shape which the turmoil takes (the external form of the turmoil) is forced on youth by adult society. Sometimes the form is political, as forced on youth by Marx, Engels and their followers, who lived very peaceful lives. You know that Marx was never found on any barricades, never confronted any police, but spent all his life studying in the sacred halls of the British Museum. But thousands of young people, led astray by him, acted out what he has given direction to. The same was true of the German youth movement, which began when an older man started to inflame the nationalism of impressionable youth in turmoil, the last effects of which you could see in Hitler. I'm not surprised by what is going on today. In my university days (now ancient history), there were young people roaming the streets of Europe in strange dress, unwashed and unkempt, with long hair, and the only things they carried with them were not bars of soap, but guitars. They sang their songs, and, as a matter of fact, some of them formed communes. So, I am afraid there is nothing new under the sun, but the severity of the turmoil depends (as I try to suggest) on the attitudes of adult society.

Case Histories

Now permit me, after these introductory remarks, to present two short histories of extreme cases of youth in turmoil, one true to life, one fictional. Let me start with the true one, which was reported just over a year ago, on November 4, 1969, in the *New York Times:*

"Marshall Bloom, the 25-year-old American graduate student who started the revolt at the London School of Economics two years ago, was buried yesterday in Colorado after committing suicide. Mr. Bloom returned to New York following his expulsion from the London School of Economics." (There incidentally has been peace since at the London School of Economics and in the British universities, which might say something about whether turmoil goes on or not depends on the attitudes adults take.) "After his expulsion from the London School of Economics and from England, he founded the Liberation News Service, de-

signed to provide an alternative to regular news agencies of the establishment. Within a year the service had acquired 400 subscribers, mostly left-wing and underground journals, but the organization later split into two factions over policy disagreement. Mr. Bloom, accusing the rival group of selling out by seeking a vulgar Marxist orientation and not a revolutionary one, moved to a 60-acre farm in Massachusetts, run on communal lines. For a while both factions operated under the name of the Liberation News Service, but eventually Mr. Bloom and his group of about 12 gave up journalism to concentrate on raising rye, corn, cucumbers and vegetables for subsistence farming. Mr. Bloom's body was found on Saturday in a car, not far from the farm, to which an exhaust pipe had been connected by vacuum hose. No explanation has been given for his suicide."

There you see a true story of a young man, obviously bright, obviously well-intentioned, who, because of his deep loneliness, a desperation about himself, first tried to act out his turmoil upon society. When this was blocked, he tried to form or to join a community to escape his desperate isolation. But even the community could not cure the sickness of his soul, and since he was a moral person, he did not destroy others but destroyed himself.

Permit me now to present to you a fictional account of youth in turmoil, and I quote the first paragraph of what I consider the greatest novel written by an American, *Moby Dick:*

"Whenever I find myself growing grim about the mouth; whenever it's a damp, drizzly November in my soul; whenever I find myself involuntarily pausing before coffin warehouses, and bringing up the rear of every funeral I meet; and especially whenever my hypos gets such an upper hand of me, that it requires a strong moral principle to prevent me from deliberately stepping into the street, and methodically knocking people's hats off—then I count it high time to get to sea as soon as I can. This is my substitute for pistol and ball."

Thus, more than a hundred years ago did Melville describe youth in turmoil. A young man may experience inner pressure either to engage in senseless violence or in self-destruction. The only solution open to this young man to avoid acting out destructively was a radical change of his total environment. Shall I say, to escape the establishment so as to be able to test himself, his early manhood, his ability to meet and defeat evil, to gain a moral existence for himself, so that in this way, his true identity gained, he may return to the world having found himself, his personality tempered by such struggle, and there take once and for all his rightful place in society as a mature man? But this Melville's hero could do only because society did not pretend that his youthful confusion and turmoil was a wave of the future and a deep understanding of the world. This, then, is the great difference between Melville's time and ours. Such adolescent turmoil has not changed any, but the way to resolve it has changed. Melville's solution was not to drop out, nor to attack the establishment, though the intense pressure to do either was obviously there, then as now. But Melville avoided the temptation of utterly destructive solutions. Instead he engaged in a desperate struggle to find himself as a unique person, rather than to remain pegged for the rest of his life to the troubles of a particular age group. His goal was not to break up the establishment but to find his rightful place in it and then prove it through the impact of what he had become, not through what he could act out on it. This difference in the ways of finding a solution is pre-arranged by adult society for the adolescent.

Let me go back to the very beginning of *Moby Dick:* "Call me Ishmael." This beginning makes clear that "Ishmael" was not his true name. When *Moby Dick* was written, people knew Scriptures, and "Call me Ishmael" meant more than it means to us today. The *Bible* tells us about Ishmael, "His hand will be against every man, and every man's hand will be against him." He, Ishmael, is the outsider. I cannot offer you any deeper insight into the origin of the turmoil of youth than that contained in Melville's description of Ishmael's state of mind. As you know from your own experience, all too many of our late adolescents

choose the way out of pistol and ball, that is, try to escape what to them is an unbearable inner conflict by either dropping out (today ever more often by the slow suicide of LSD or "speed") or, if they do not kill themselves, by destroying themselves as autonomous human beings by embracing a delusional life of non-existence. Many of them, like Ishmael, step into the street and knock people's hats off—it is as though Melville had forseen our street demonstrations and sit-ins. Adolescents have a propensity for confrontation for confrontation's sake. Those who confront believe that they are striking out actively and vigorously for autonomy, but they destroy themselves as radically as their counterparts who withdraw into solipsistic adulation of themselves. How much these two, those who confront and those who drop out, are brothers under the skin, could be seen, for example, by how easily they made common cause during the Democratic convention in Chicago. In our own world there is a small number of such students. I find that as long as they can easily discharge their inner pressures through acting out, as long as society permits them to do so, they can fool themselves that they have escaped their desperate loneliness. As long as their own cult and society admire their acting out as being an idealistic wave of the future, they are not likely to subject themselves to the rigorous examination of their inner motives which is implied, for example, in psychoanalytic work, because as soon as they begin to take such stock of themselves, instead of acting out, they all sink into deep depression. Fortunately, the result is not always suicide as it was for Marshall Bloom.

The Dynamics of Revolt

It appears that revolt has indeed been a substitute for pistol and ball. Seeing young people in deep depression, with their feelings of hopeless isolation, of utter worthlessness and despair, one cannot help feeling that they may be better off revolting, although society certainly would not be. Why do I not let them go on with their turmoil and their revolt? Because of their own choice. Once they have taken a good look at themselves and their motives, not a single one in my experience wanted to go back to revolt, because then they knew that it did not offer them what they desperately longed for. In the immensity of their despair they were reaching for closeness to another person. Revolt symbolized, then, their feeling that they could reach him only by first destroying the entire world. Only when the establishment is brought down, do they think, will they be able to gain access to another and escape isolation. One student activist participated in all demonstrations he could, because while they lasted he had a temporary feeling of being together with others, thus escaping his desperate loneliness and isolation. He knew that his activities were extremely rewarding and important to him, and because of this he was convinced that the causes he avowed were of greatest merit, although he actually knew very little about them, nor did he try to inform himself about them. One day on one of his marches the leader told them they should hold each other's hands. It so happened that he found himself without anyone holding his. Recalling this in therapy, with tears profusely streaming from his eyes, he said, "No one wanted to be close to me. That has been the story of my life." He continued to participate in militant activities simply because he did not know of any other way to satisfy his longing for being close to somebody, if only for a moment. He also came to take drugs to escape his misery. A relative of his who had had similar experiences and had been helped by us encouraged him to seek our help, and one day he appeared on our doorstep.

A psychiatrist friend of mine, studying this group, has selected for them a title I wish I had been smart enough to think of. He calls them "the terrified terrorists." One example was a graduate student who at col-

lege had vigorously propagandized Maoist China. To him, although he was Jewish, the United States was exactly like Nazi Germany. He fervently believed and worked for the overthrow of our government to replace it with one similar to Communist China. As a matter of fact he hoped for an atomic war between Russia and the United States because only if Russia and the United States, as he hoped and fervently prayed for, would destroy each other could Maoist China take over. He felt that the death of hundreds of millions would certainly justify reaching this goal. His radicalism had succeeded in gaining the admiration of student crowds, although he was so shy in private in any one-to-one situation that he was tongue-tied and never dared talk to any body. He never had a date nor any sexual experience although he was in his late twenties when he sought treatment. His sexuality consisted of masturbation fantasies of undressing an attractive girl. Early in treatment he recognized that his extreme radical position gave him some feeling of personal uniqueness and some attention among his friends, but those who were not of the same radical persuasion as he was considered him a clown. He had profound feelings of rejection and abandonment. He also lacked adult figures in his life with whom he could identify in any healthy fashion. Political activities permit such persons to escape complete paranoid breaks with reality. By interpreting reality as a paranoid delusion they are able to remain in touch with at least some isolated parts of reality. The support and adulation they find from their friends by their daring attack on authority provides another, though tenuous, contact with reality. That is why the first-mentioned student could seek treatment when he lost even this contact because nobody was taking his hand, and that is why Marshall Bloom had to commit suicide when he realized that even living in a small commune with his closest political friends did not permit him to break out of his personal isolation.

Thus, embracing such an extreme position is actually an ego defense; without such paranoid defenses, rage and violence would destroy them. The delusional quality of their beliefs leads such people to complain loudly that nobody listens to them, to oversimplify issues and to be preoccupied with violence and destruction. They fear destruction of themselves and therefore embrace ideas of the destruction of their enemies. Lacking closeness in human relations, they require a defense against being uncontrollably swept into anonymous homicide or even suicide, which are usually the result of the depressive and obsessive-compulsive defenses having failed. These young people are able to maintain themselves through most of their high school and some of their college years. In treatment these defenses have to be re-established before in further treatment they can be replaced by better defenses. Thus, for them the only constructive solution is the one that Melville suggested: only thru a struggle that tests our very existence to the core can a person find his identity. The moral struggle, the struggle with good and evil as represented by the white whale, stands in the center of Melville's novel. The same struggle for self-discovery goes on in psychoanalytic treatment. As we all know, if the avenues for such struggle to find ourselves are closed, then the alternatives of dropping out or violently acting out become so tempting that they cannot be resisted. I have refrained from detailing the early life histories of those who are the students in turmoil. We are well familiar with the severe emotional isolation in infancy, the utter frustration of all longings for closeness, the desperate feelings of abandonment which create persons in turmoil.

The Responsibility of Adults

Now what have we as adults done wrong? Mostly, as I said before, we have wronged

them by pretending that their confusion offers violent solutions. Long before that we have wronged them by the way we brought them up as infants and children and sent them into adolescence so many badly prepared to solve their identity crises successfully. But most of all, as I said before, we do not recognize adolescent experimentation with extreme positions as exactly that. So many of the intelligentsia, who should know much better, think that because youth have to experiment in their minds with violent and destructive solutions that such solutions are therefore potentially feasible and to be considered seriously. Thus, when adults fail to define for them what ideas are suitable to be experimented with in thought only, youth are left without direction and come to believe that all that can be experimented with in thought is suitable to be tried in reality. Thus, by not clearly and concisively showing them what is permissable in society and what not, what is permissable in thought only and what also in action, we defraud them. We defraud them of the reactions that it is our adult responsibility to give them. And, so defrauding them, we utterly confuse them about which are the only ways to solve the crises brought on by the incredible elongation of adolescence and dependency that modern education requires. Much, I must say and admit, is the result of a pernicious misapplication of psychologic insight and procedures. So my own profession is not free from this guilt. We have all benefitted from psychologic insights, particularly our society in the United States, but we have not been successful in warning against the confusion which can come from misapplying psychologic insights. Let me illustrate. Psychoanalysis has suggested that we should not suppress but face our inner rages, but it has suggested that we should face them only in thought or only within safely structured treatment situations with all their safeguards. This unfortunately has been misapplied by large numbers of the educated middle classes as to mean that rage should always, in all situations, be expressed, and not only in thought. Thus, many children nowadays do not learn to repress rage in childhood, do not internalize superego controls over id, and hence later on, and because of adolescent pressures, are flooded by rage, have no mental institutions available to them to control it, to restrict it to thought only. Knowledge about the insidious consequences of the repression of emotions has been misapplied by being extended to the belief that it is legitimate to discharge emotions, including rage, in action, without any control by thought. This is a fatal error in upbringing, namely, that the difficult and arduous task of recognizing instinctual tendencies and still not acting them out has been side-stepped, and the bad old ways of repressing instinctual tendencies, without recognizing them, has been replaced by the even worse new way of simply acting them out. At least the old way of repression was all of one piece; the modern way is one of contradictions, since some instinctual tendencies are still repressed as before, but others are elected to be discharged without intervening thought and rational control. This doesn't make any sense at all, and is the source of the youngsters' insisting that our society doesn't make any sense to them; and, to make matters worse, the decision of what to repress and what to discharge is not based on the interest of the child, but usually on the convenience of the parents.

One specific problem ought to concern us. Practically all those who have investigated the phenomenon of youth in turmoil, and of the hippies, are struck by the dominance of children of the upper middle class, children of educated parents. We must take seriously what they say when questioned, why they feel the establishment has to be brought down, why they feel that society is not worth being preserved. As one Harvard senior said—and time after time youth in revolt responds to quests about the sickness

of society with—, "Take my father, for example." Indeed, it is in the changes of the upbringing of children in the upper middle class homes that we have to look for the answers to our problem with youth. The answer lies in the emotional and geographical distance that exists in these homes. Every child has a room of his own and preferably a bathroom of his own, so he never knows intimacy, never learns any sharing, any accomodation to others. But this of course is only the outer expression of inner turmoil and emotional distance that characterises the lives of these families. In the *New York Times Magazine* last Sunday there were descriptions of some of these young people, which match perfectly my own experiences with them, by a psychiatrist who studied youth in turmoil in New York. He describes a boy, James, who tells him how anxious his parents were about his taking the car out after a blizzard, but nevertheless they let him take the car, although they and he knew driving was next to impossible. When he returned home, he reported, "Fifteen times I nearly killed myself or someone else." He was honest enough to criticize his father for letting him use the car. His father answered that he didn't want him to take the car but was afraid his son would think him over-protective if he refused the use of the car and might become angry. There it is: these parents were so afraid of the honest emotions of their children that they would rather permit them to kill themselves, to risk killing themselves, than to have an angry exchange in the home. The emotional withdrawal on the part of the parents to avoid having to deal with the child's emotions is typical for these children. A girl reported that though politics was discussed in the family all personal matters were avoided, that her parents withdrew from her whenever she needed them most. For example, before she decided to participate in the Columbia upheaval, she called her father long-distance for advice. He refused to give her an opinion, afraid that she might be angry with him, and said, "I am letting you decide the right thing to do." That had been the story of her life. She was always told to decide for herself, but whenever she decided, never met with parental approval. In short, the youth in America say their parents continually give their children enough rope to hang themselves. And this, indeed, they proceed to do because they don't know any other way. Kenneth Kenniston, in his writings, observes that radical students have achieved a detached, objective view of their parents. That is not so. It is the other way around. Psychoanalytic investigation makes it clear that such detachment is always the result of parental detachment and objectivity. The student's objectivity, the youth's objectivity, is usually embraced to conceal pain too difficult to face. Another activist girl reported in the *Times* article that both her parents are professional people in active careers. As the oldest of the children, she had to care for herself and two younger siblings when her parents were busy doing "important things," such as saving society and working for a better school system and a better community. She described her parents as essentially nice people. They were so adult, and I quote, "like camp counsellors." "My parents aren't the sort that feel a family ought to do something on a Sunday. So if they are together they get along fine, because each one is doing his own thing." She adds, "If we all as a family had to go together to the zoo, we probably would have killed each other." Lack of contact was a euphemism for emotional abandonment which was most movingly described in an incident which occurred after tonsilectomy when she was still ill at home. She was left alone in the house because her parents, again, had to engage in "important" community activities, marching for some cause or another. She developed a severe hemorrhage and became panicky. Her mother had told her to call a neighbor if something happened—so the mother was not unaware

that such a thing could happen—, but the girl knew the neighbor was a hysterical woman who would be of no help. She stood by the window for two hours, choking on the blood in her throat, waiting for her mother to come home, feeling that her mother had no right to expect her to take care of herself in that situation. Can you be amazed that, after such an experience in childhood, as a grown-up she feels that the adult establishment isn't worthy to be preserved, that she cannot trust anybody?

You would be amazed how many stories of such children I could tell you. In the relatively small group of youth in turmoil, including dope addicts or student revolutionaries or suicidal students with whom we have worked, practically every one has such memories of being left to his own devices because their parents had more important things to do. I recall one example of a child on whom a neighbor had to perform a trachotomy so that the child could continue to breathe while the parents were out on "important political activities." Knowing such students, I would like to disabuse the idea (because we are misguided to believe it) that they are the very bright ones. They indeed are not. The Carnegie Foundation has sponsored a study (conducted in, of all places, the University of California in Berkeley) of this radical student group. Unfortunately it isn't published, and I feel very much that it will be suppressed, because it shows that none of them is a first-rate student. They are not stupid, but their actual academic achievement and ability does not at all come up to their own expectations nor that of their parents. They are all students who at home are over-expected, and who over-expected themselves. They are typically B-minus students. When it comes to any research project, anything that requires stick-to-itness and intellectual control and intellectual criticism, they fail abyssmally. Thus, the theory that these young people choose to be in turmoil, choose to be bored, is simply not so. Of course they could make it, but they could not make it in terms of their exaggerated expectations of themselves. Like Caesar, who preferred to be first in the village than to be second in Rome, they prefer to be first in revolution than to be third-rate academically. Their frustration and anger and their increasingly exclusive interest in violent political actions deprive them of the necessary patience to finish, even though they realize that education, especially in law, would enable them to contribute more, even to the radical cause.

In the revolutionary culture, many have found families which at least understand them a bit better than their own families, and identification with the poor and the oppressed permits these radical students to react to poverty and oppression without having to face a person impoverished or victimized or in the rage they feel. Their acute sense of injustice derives from personal injustice experienced with their families, not from the injustice of society. When I see some of these students, unwashed and unkempt, I cannot help thinking, "Here goes another youngster who as an infant was practically cut out of existence by his parents." There is a strange contradiction—and these are the inner contradictions that tear them apart—in their behavior. In their hatred of themselves and of society, of all adults over thirty, they only seem to be expressing what their parents did to them. In their manner of dress they defy the world of their parents. But deep-down they mistreat and neglect the legitimate needs of their bodies, much as their parents have neglected them. It is a pushing during infancy and childhood to a premature maturity in one area but indulging and over-stimulating in another which tears them to pieces later on. That is why they so desperately seek an inner unity that continues to evade them.

I would like to end by discussing our own shortcomings, particularly those of my profession, because my profession shares in

the burden of guilt, because we ought to know better than anyone else what lies behind the grandiloquent ways, the megalomaniac ways in which students in turmoil express their confusion, their distress, their anguish, and the destructive ways in which some of them struggle for their own identities and in which some attempt to destroy the establishment as they desperately try to resolve the unbearable inner contradictions they have projected outward on society. These inner causes of external behavior are not fearlessly and vigorously exposed to us. We do not, in regard to the student revolt, for example, vigorously demonstrate the inner anxieties that lie beneath the high moral-sounding assertions that not only the leaders of the students in turmoil but also many adult intellectuals pronounce. Instead of exposing the uncouth, unconscious causes for such behavior—the only way which we can help youth with their inner difficulties—, we are so anxious to be viewed as progressive that we fail in our task of explaining, understanding and helping. Where would we be, and the world, if Freud, out of Victorian respectability, had refrained from exposing the repressed sexuality and shame which was so destructive to his generation's own well-being. Freud, who was in every measure a Victorian, did not hesitate to use quite a few of the Victorian virtues to expose the Victorian vices. We, however, knowing some of the virtues which are to be found among students in turmoil, refrain from exposing their vices. Not to do so is as much a betrayal as if we would deny validity to their rightful complaints. Just as Freud, because he recognized the merits of Victorian sublimation, gained the conviction that he must fight Victorian repression, so should we, because we recognize some of the merits of the movement, be equally ready to fight its vices, such as the rejection of reason and the reliance on coercion, if not violence. We must take responsibility for some of our offspring whether or not we like what in part we ourselves have spawned. Just as Ishmael had little other cause to knock people's hats off than his own inner confusion (although there was plenty wrong with Melville's society), so youth in turmoil have little other cause for their turmoil than their own inner inability to live at peace with themselves, for which they blame the existing order, and therefore fail to do something about themselves.

I do not want for a moment to excuse inequities that any social order, or any society ever created by man, is heir to, very much including our own.

Now, you could ask, haven't you assumed all along that all adolescents in adolescence try to re-dream and re-enact their Oedipus conflicts. This is indeed true and has always been true if you can trust psychologic findings. What is entirely new is the belief that this is not only possible but desirable and of high moral value. What is new is that institutions of society which should represent adult intelligence and maturity, which should be towers of strength, able to convince adolescents that such daydreams are indeed delusional and destructive, applaud the re-enactment of a most infantile position instead of applauding the signs of higher maturity. What makes youth in turmoil so dangerous is that adult society is not now setting definite limits within which youth can safely unfold and face inner conflicts which must be solved, not acted out, if maturity is to be gained. The difference, then, ladies and gentlemen, is that, contrary to Shakespeare, I believe that the Hamlets of this world can rule it, that the Hamlets of this world will always get destroyed if they are permitted to destroy their parents and the world of their parents, and that the world goes on and order and safety of life can be established only by the Fortinbrases.

The Drug Scene—1971[1]

By DONALD B. LOURIA, M.D.[2]

There is sharp disagreement about the nature of the drug scene at the end of 1971; it is, according to various observers, becoming progressively worse, reaching a plateau in regard to incidence, or ameliorating, at least in regard to more dangerous pharmacologic agents. Many feel that the increase in marihuana use is occurring at such a rapid rate that very soon marihuana use will be the behavioral norm, and non-use deviant.

Our own studies covering 12,000 junior and senior high school students in northern New Jersey do not support these estimates. The prevalence of marihuana use among our students (Table I) averaged 20% among juniors and 23% among seniors in the 1969–70 school year; during the 1970–71 school year, the prevalence figures were virtually unchanged (1). Thus, in the geographic area we have studied, there is no persuasive evidence that marihuana use is increasing progressively. Additionally, it is important to stress that much of the use is evanescent or irregular. Fifty-eight percent of the current users utilized the drug twice a month or less. Furthermore, approximately one-third of the total marihuana users were no longer current users. Clearly, the majority of marihuana users are transiently involved or are dabblers.

The situation in regard to prevalence of use of LSD, heroin and intravenous methamphetamine is similar to that with marihuana.

We have become convinced that the most sensible approach to the drug scene starts with an understanding of motivation. Among our 12,000 students, the major reasons listed for drug use were curiosity and pleasure-seeking. When the non-users were asked the reasons for use by their colleagues, they agreed with curiosity and fun as major motivations but, in addition, they emphasized the importance of peer group influence. Indeed, multivariate analysis shows that of the 30 risk factors promoting illicit drug use, the peer group was far and away the most important, accounting for over half the total accountable risk for each of the illicitly used drugs (2). This finding has considerable importance; it is clear that if any impact is to be made on the burgeoning drug scene, the influence of the peer group must be countered. Thus far, most attempts to modify the peer group drug abuse tendencies have focused on attitudinal training and similar dialogue-confrontation techniques. An additional facet of peer interaction is the use of drug users or ex-drug users in an avuncular role for those deeply involved in the drug scene or experimenting with drugs. These efforts are uniformly unevaluated, are sometimes self-serving and frequently are patently ineffective. The peer group leaders often lack accurate knowledge about drugs, and sometimes their own personality problems preclude an effective counseling or leadership role. Many times, the peer group interactions are merely non-directive "rap" sessions. It might be far more effective if attempts were made to provide the peer group with the leadership that would encourage continuing involvement in activities that might obviate much of the involvement in the drug scene.

The Physician's Responsibility

The role of the physician has not been adequately defined. It is our feeling that

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the physician can play a far more effective role. The following points appear to merit emphasis:

1. The physician has an absolute obligation to acquire the factual information needed to deal intelligently with the drug scene. Surprisingly, this is not so difficult; a modest amount of reading is all that is needed.

2. The physician must rid himself of pejorative stereotypes. All too often, the supportive role a physician should play during an adverse drug reaction is vitiated by a perceptibly negative attitude towards the user.

3. It is up to the physician to stress the importance of understanding motivation for use. Unless this is done, parents and the community at large will continue to look in insular fashion at the drug *per se* and will regard the user either in punitive or insouciant fashion.

4. The physician, better than anyone else, can equip himself to make the crucial judgment whether the problem is the drugs themselves or underlying personality derangement. Unless this judgment is made accurately, there is no way to approach the multi-drug user intelligently. Repeatedly, we see heavy drug users who suffer not so much from a drug problem as from an identity crisis or depression. If the correct diagnosis is not made precisely, there is a tendency to focus only on the drugs used, and this can be catastrophic for the individual suffering from deep-seated personality aberrations.

5. It is the responsibility of the physician to insure that each community has adequate emergency services for those undergoing acute adverse effects or in need of medicaments during withdrawal from addicting drugs.

6. Physicians should supervise hot lines and walk-in clinic services. Unfortunately, most of these are not so supervised. As a consequence, a considerable amount of the information and advice is inaccurate and, sometimes, it is potentially dangerous. The physician need not interfere with peer to peer hot lines or walk-in centers, but he should provide back-up services and try to assure that the statements and counseling are as accurate and helpful as possible.

TABLE I

Prevalence of Marihuana, LSD and Heroin Use in Schools in the Same Geographic Area in Successive Academic Years

School	School Year	Current Marihuana Use*	Current LSD Use*	Current Heroin Use*
1	1969–1970	17.4	4.8	.36
2	1969–1970	18.1	3.4	1.8
3	1969–1970	30.8	4.6	.95
4	1969–1970	20.8	3.6	.63
5	1969–1970	15.2	1.6	1.0
6	1970–1971	30	6	.9
7	1970–1971	25	1	.7
8	1970–1971	12	2	.7
9	1970–1971	16	3	.9
10	1970–1971	34	5	.7
4	1970–1971	24	3.2	.42

* Percent using.

7. The community physicians must coordinate back-up services, including in-patient services and psychiatric referral. The latter can be difficult to implement, unless the psychiatrists in the area designate some of their number, who relate well to adolescents, to acquire the requisite expertise in the drug scene. Presently, there are few psychiatrists who possess the knowledge and are trusted by young persons.

8. Physicians, perhaps better than anyone else, can play a major role in demanding that all prevention and rehabilitation programs have some sort of extramural evaluation. It is high time that such dispassionate scrutiny replace the public panegyrics to which we are all currently exposed constantly. Only if this is done will we have the disinterested data that will permit us to maximize the efficiency of any given program and decide which prevention or rehabilitation programs merit expansion to public health policy. At the New Jersey

Medical School in Newark, our Drug Abuse Division is responsible for extramural evaluation of each of the major heroin rehabilitation programs in the city. It is our hope not to denigrate individual programs, but rather to gather enough demographic and follow-up data to be able to fit a given addict to a specific treatment modality that is most likely to speak to the individual addict's needs.

9. Finally, the physician should participate in organizing community, school and home alternatives to the drug scene. Many would feel that the doctor has enough to do without getting involved in the subject of school and community activities. However, it seems likely that providing adequate alternatives to involvement with drugs is the best preventive approach to drug abuse. Clearly, it is more prudent to prevent drug abuse than to attempt to treat it once the youngster is deeply committed to the drug scene. Consequently, the physicians' responsibilities lie as much in the area of prevention as in therapeutic and rehabilitative aspects.

Mis-Labeling of Drugs

One of the problems facing the physician attempting to treat acute adverse effects of mind-altering agents is the mis-labeling of street samples of illicit drugs. The current status of market deceptions is outlined in Table II. Marihuana may be adulterated with opium, dimethyl tryptamine or atropine-like agents. The agents used as adulterants or substitutes for hallucinogenic drugs are phencyclidine hydrochloride (PCP) and methoxymethyl amphetamine (STP, standing for serenity, tranquility and peace). The two mind-altering agents found to be ersatz most frequently are mescaline and tetrahydrocannabinol. Indeed, one ironic aspect of the drug scene is that a substantial number of young persons, afraid of the potential genetic consequences of LSD, are turning to mescaline for their hallucinogenic experience; in point of fact, if the substance they purchase as mescaline does cause hallucinations, the likelihood is that the substance is in actuality LSD, the very drug they are trying to avoid. Alternatively, what is sold as mescaline may be PCP or STP. The tetrahydrocannabinol is likely to be nothing, phencyclidine or STP. In some cases, the material may initially have been tetrahydrocannabinol, but the activity may have been lost during prolonged exposure to air.

This egregious misrepresentation must be taken into consideration during treatment of the acute adverse effects of mind-altering agents. Many physicians and clinics are still advocating the use of chlorpromazine, either by mouth or intramuscularly. Although this drug is clearly the agent of choice if either LSD or amphetamines have been taken, chlorpromazine is potentially harmful if the drug ingested or injected happens to be an atropine-like agent. Since LSD or stimulants are not infrequently adulterated with atropine-like agents (including STP which, although a stimulant derivative, has the toxicity of atropine-like substances), the physician must *always* assume the substance used was impure or ersatz. Consequently, phenothiazines should ordinarily be avoided unless the treating physician has chemical evidence documenting the purity of alleged samples of LSD or amphetamines. Even with these caveats against phenothiazine use, it should be emphasized that augmentation of adverse effects in patients who have taken atropine-like mind-altering agents will occur only infrequently after administration of phenothiazines.

Determining Factors in Drug Use

Finally, the physician must be aware of the likely determinants of the drug scene in the future. Some of these are listed in Table III. I would like to discuss briefly three of these: family structure, hedonism and availability.

1. *Family structure.* Statistics from The

TABLE II

DECEPTIONS IN THE ILLICIT MARKET

Drug	How Frequently Pure	Dosage Range of Pure Material Per Administration	How Often Completely Ersatz (est.)	Mind-altering Drugs Admixed	Mind-altering Drugs Used as Substitutes
Marihuana	Usually	½–2½ grams	20%	Atropine-like agents (particularly scopolamine), dimethyltryptamine, strychnine, opium, mescaline	Phencyclidine (PCP) or oregano
Hashish	Usually	Not well established	<10%	Rarely opium (sometimes mixed with spices)	—
LSD	Usually	1–1000 ug	20%	Strychnine, PCP, substituted amphetamines (STP), scopolamine, caffeine cocaine, tranquilizers	PCP, substituted amphetamines (STP)
Mescaline	Rarely	—	>95%	LSD, cocaine	PCP, LSD, STP, MDA, atropine
Heroin	Rarely	<1 mg–30 mg (occasionally up to 75 mg)	10–20%	Cocaine, amphetamines, barbiturates	Very variable
Intravenous methamphetamine	Very variable	<10–1000 mg	Unclear	Very variable, sometimes LSD tranquilizers, barbiturates, heroin	Very variable, sometimes cocaine
Tetrahydrocannabinol	Almost never	—	>95%*	—	Usually PCP, sometimes LSD, MDA, STP
Psilocybin	Infrequently	8–40 mg	Usually	LSD	Usually LSD, occasionally barbiturates, PCP
Methylenedioxy Amphetamine (MDA)	Very variable	10–20 mg	50%	—	LSD, PCP

* Either ersatz or has lost activity.

TABLE III

SOME LIKELY DETERMINANTS OF THE DRUG SCENE IN COMING DECADES

Availability of drugs
Number of intoxicants permitted
Family strength
Boredom
Amount of leisure time
Reaction of youth to national purpose
Extent of societal hedonism
Society's ability to solve its major problems (meliorism)
Leadership
The urban condition

National Center for Health Statistics have documented clearly the progressive deterioration of the family unit; in 1962, the divorce rate was 2.2 per 1000, and this has risen progressively to 3.5 per 1000 in 1970 (3). In contrast, the marriage rate increase since 1962 has been far more modest. The result of this continuing trend is that in 1970, there were an estimated 2,179,000 marriages and some 715,000 divorces. The perceptible decline in family strength, the increasing percentage of marriages ending in divorce, and the large percentage of unhappy marriages not formalized by divorce affect everyone. Chein and his colleagues showed clearly that family disruption characterized the backgrounds of heroin addicts in New York City (4). Recent surveys by Blum and his associates (5) and by our own group in New Jersey (1, 2) indicate that those who view their home lives as unhappy are far more likely to be involved in the drug scene. The unhappy child appears to be far more susceptible to the blandishments of the drug proselytizer and is much more likely to be a multiple drug user. Such a child is likely to constitute part of a peer group that influences children from strong and happy family units to at least experiment with illicit drugs. Thus, the growing family chaos should be of enormous concern to everybody. Yet our society has reacted to this serious problem with remarkable indifference. Preserving the family unit and increasing its strength should be a top priority goal for the United States, yet our national leaders have not defined the problem or made the appropriate commitment. Our family counseling units are inadequate and underfunded, many of the counselors are poorly trained, there is no emphasis on obtaining help before the family unit is irrevocably damaged, and there are grossly inadequate courses on the importance of the family in high schools and colleges.

2. *Hedonism.* For the last 25 years, we have been moving intentionally and rapidly to a hedonistic society in which goal-directed activity is subordinated to pleasure-seeking. If the drive for sensate pleasure becomes the predominant motif of society, then it will be difficult to reduce the severity of the drug scene, because each of the drugs used illicitly today has the capacity to either initiate or augment pleasure. What the country needs at all levels is the kind of leadership that will enunciate attainable and important goals for the growth of society and provide the guidance that will direct young persons away from the drug scene by placing the search for pleasure in its proper perspective. At present, this clearly is not being done.

3. *Availability.* Whatever else is done, the drug scene will not ameliorate unless the supply of drugs available to our youth is markedly reduced. To do so will require a modest change in our laws, education of the judiciary, and a halt, to a large extent, in the plea bargaining that deturpates our entire legal system. The illicit manufacture or sale of a substantial amount of an inordinately dangerous drug should result not in a reduced charge (to a misdemeanor) or a suspended sentence, but rather in a jail sentence, the length depending on the amount of criminal involvement of the manufacturer or seller. The sale or importation of a significant amount of heroin by a non-addict should, upon conviction, result in a severe penalty, such as 20 years in prison. Concomitantly, we must treat the user or

possessor with compassion. But there can be no tolerating the manufacturer or major seller; these venal despoilers of young people must be treated rigorously when convicted, or else all other attempts at coping with the American drug epidemic will fail.

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Violence and the Brain[1]

By FRANK R. ERVIN, M.D.[2]

I am, as usual, embarrassed by introductions, but even more in awe of my predecessors. I can only take comfort in the thought that it was no accident that the College President, in his wisdom, has interposed a lecture on violence between the introductory ceremonies and the budget discussion.

What I should like to talk about is indeed "violence," except that that is a very sloppy term. It makes great titles and draws an audience, so it is useful. I should like to specify, however, that although I have attitudes, and indeed strong opinions, about many forms of violence, I should like to limit my subsequent remarks to that form of behavior which characterizes individuals who recurrently attack other individuals (with whom they are in vis-à-vis confrontation) with physical means, with intent to harm or kill. I think that is a fairly straightforward operational definition. I should like to underscore the fact that I am not talking about people who use nasty words, people who sit-in in college deans' offices, people who fly bombers, or any of the other varieties of social deviance that are lumped together in the press and in political rhetoric under the term "violence."

It may well be that some of the conclusions that we have drawn from our studies are applicable to these more cosmic and philosophical concerns. But there do exist individuals who are recurrently violent in the ways that I describe. There are, in some absolute sense, fewer of these individuals than one might think. (I believe that our social mythology suggests that those might include anyone at any time, and one of my themes is that this is not true.) This category does include, however, an appreciable number of individuals. Homicide, to take the most measurable output of this population, is only the seventeenth leading cause of death in this country (well under suicide which hovers around the eleventh); but, for that population between 18 and 24, considered often the most promising part of our population, death by homicide ranks among the first four causes. The first four leading causes of death in the college-age population, whether in or out of college, are accidents, suicide, homicide and cancer.

So, for a segment of our population, it is indeed a significant public health hazard and striking in the regard that in general, in medicine, we have paid so little attention to the problem of the individual who is violent. In retrospect, now having been concerned with the matter for some time, I think there are several reasons for this. First, violent people are unpleasant to work with. Physicians have (though often on paper behaving otherwise) selective capacities about whom they pay the most attention to in their daily practices. Second, our own Puritan ethics, I believe, have allowed us to respond to certain kinds of social deviance, of which personal violence is one, with a kind of moralism that excludes the practitioner from consideration as part of the medical population. We are more willing to define him as a member of the criminal population. Now, it is very striking, as one looks back over the history of social deviance, and particularly thinking of it in terms of criminal justice, that it was really not more than a hundred years ago that people who were defined as "crazy" and

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people who were defined as "criminal" were kept as a fairly homogeneous population, i.e., they were locked up together. The lesson of what happened to the "crazies" I think is relevant to our problem and the work I am doing.

After Dr. Kraepelin concerned himself with the problem of determining whether one could categorize all of the various people labelled insane, his nosological triumph very rapidly reduced the psychiatric clientele. People who were previously categorized insane were discovered to be syphilitic and could be treated. Others who were formerly insane were discovered to have pellagra and vitamin deficiency, and not only could they be treated, but other cases could be prevented from occurring. We began to find that if one gave thiamine to people with Wernicke's encephalopathy, Korsakoff's syndrome did not follow, and so on. Each of the triumphs of psychiatry has now moved to some other specialty where it is more adequately treated, leaving us with a constantly dwindling supply of poorly-defined syndromes for which to discover the etiology and treatment.

I submit that the issue of individual violence, or more broadly, any social deviance in the criminal justice definition, is in a similar state. It is not clear what that population is, and the first task is to look at all those individuals, or a random sample of them, who are defined as individually violent and see if we can begin to recognize subcategories that can give us a clue as to the etiology, as to the prevention, as to intervening physiological (pathophysiological) mechanisms, and as to treatment. That task has only begun, but some suggestive things are beginning to appear.

If one looks at a population that appears with a chief complaint of what I have called in other places "episodic dyscontrol of affect," one has several questions. Axiomatic for me is that behavior is related to brain function. No brain, no behavior. I like to think that that does not mean a mechanistic or sterile understanding of the relationship. It leaves open all of the questions about how the brain gets shaped the way it does. At some level of integration, it is alway possible to ask in relationship to any given behavior: "In what way is the brain organized at this moment in time, as the underlying substratum of that behavior?" If we see deviant behavior (particularly episodically deviant behavior) in the individual, we can ask what kinds of changes occur in the brain organization that underlies the dysfunction.

Now, there are a number of things, obviously, that go into determining the structure of the brain and its organization at any moment in time. Without being too tiresome, let me remind you of some of them. First is its phylogenetic history. It carries with it an ancient past. Second is its ontogenetic history. It carries a unique set of individual experiences beginning at the fertilization of the ovum and continuing until the moment when the patient is observed by the physician. Those include the fortuitous circumstances of injury, infection, failures of organization in an embryological sense, intermittent toxins of one kind or another (some of which are self-administered), the immediate sensory input the individual is receiving, and indeed the instantaneous fluctuations in cerebral organization induced by the immediate chemical surroundings both hormonal and metabolic.

The behavior emitted is a combination of all those things. So, as we look for alterations in brain organization underlying a particular behavior, we may find those alterations occurring as a consequence of any one, and frequently of more than one—and on occasion all—of the determinants of instantaneous behavior. Now, that becomes pretty platitudinous. How does it apply, if it does, to the violence problem? There is some interesting information about the organization of the brain which has been known for a long time.

In retrospect, we see that most of this is known from neuropathological studies. Most of our wisdom, it turns out, comes from 19th-Century, carefully-done autopsies. This information has been supported in the last quarter century by an immense amount of animal research. The information is as follows: There exists within every vertebrate brain a subsystem sometimes known as the limbic system, or the limbic brain, a term borrowed from a French neurologist who used it to refer to the fact that the major visible components of the subsystem of the brain form the inner edge of the brain looked at in medial section. The limbic brain can be variously defined as a number of unique sub-structures within the brain, but it seems to carry the responsibility of integrating those acts that are critical for the preservation of the individual and the preservation of the species. It takes care of feeding, fighting and reproduction, and it is essentially unchanged in these basic functions from primitive salamander, Coal Age crocodile, to man. The crocodile survives quite adequately in his limited environment. He manages to reproduce, to feed and to defend himself from such foolhardy attackers as may appear, suggesting that many important survival functions represented in the limbic system are pre-programmed, in a computer sense. Complex acts are laid out for ready access when needed. Let me give a more common example. In whatever complex ways one comes to eat and indeed we go through very complex mechanisms, as civilized men, to assemble in halls and to earn money and to sit at tables and to use the right fork, and so on, when the time comes that the food is in the mouth, the procedures of chewing, salivation, swallowing are much those that all of our vertebrate ancestors have used in the past. Although they are "conscious" for quite some time (and one can modify them deliberately in many ways), it is good advice, if you are eating at a distinguished banquet, not to think too much about those mechanisms. You are likely to embarrass yourself.

Similarly, such mechanisms as walking and running, although they are developmental and to some extent learned and certainly voluntary, these mechanisms can be modified in ever-so-complicated ways. Yet, if someone yells "Fire!" and your job is to get to the street, I suggest you not think about the mechanism. Turn your feet on and say "Go!" Do not say "Left foot in front of right foot." That is, even this kind of elaborate and quite flexible act is preprogrammed in a special sense, and one can push the button and the appropriate procedures flow.

Now, with those homely examples, I suggest that the same kind of pre-programming has been appropriate, and has indeed occurred, for the mechanisms of fight and flight, if I may use a quite artificial dichotomy which a Harvard boy developed a few years back. Let me explain what happens specifically in the experimental animal. There is a portion of the limbic system known as the amygdala (Latin for "almond"), a nucleus shaped like an almond. It is a phylogenetically ancient brain structure which, when stimulated electrically or chemically, causes a number of reactions. For example, if one stimulates the medial portion of the amygdala in a cat alone in a box, the cat will arch his back, fluff his fur and elevate his tail, producing a beautiful Halloween cat. He is ready for action; he doesn't do anything. There is nothing to do. He is in an empty box. Given an appropriate target in the box, for example, the experimenter's hand, another cat, a teddy bear or bull dog, he will carry out an adequate, efficient, deadly, species-specific attack. He does not attack the animal as if it were a prey animal (he has a very special mode for doing that); he attacks the animal as though it were a threat to him, as though it were an invading animal. If, on the other hand, he is presented not with a target but with an escape route, he will gratefully es-

cape. He will flee from the cage where he is being stimulated, move to a box where the current is turned off. He is ready to move in either direction. Given the choice between the two, his decision is, as best one can tell, arbitrary. It depends on which way he is pointed, what he is closest to, perhaps what he has been doing just before, and (although I hate to say it to a scientific audience) maybe what he is thinking about.

Now this system, that can be stimulated to elicit species-specific attack behavior, can be neatly defined anatomically. I have mentioned the medial amygdala. Activity there is transmitted via the stria terminalis to the hypothalamus, subsequently to the midbrain. Along that route one may electrically stimulate; one may block the effect by lesion; one may again stimulate, and one may again block by lesion. One can define the functional circuit rather clearly.

This system has been described, delineated, and worked with in chickens, in cats, in monkeys, and in rats and mice. It has been tampered with in more interesting animals like the lynx and wolverine. In regard to those tamperings, the question has been whether, after we turn on these patterns of behavior by stimulation, we can terminate the behavior by removing the structures. (Our usual, but frequently erroneous, logic about the brain says that we should be able to.) It is true that by surgery, an ablation of the amygdala, in aggressive animals such as those I have mentioned (or the rhesus monkey), one may produce an animal which is tractable, placid, can be handled by the experimenter, and shows no evidence of his ordinary, usual, nasty aggression. Such studies that have been done suggest that for animals of that kind, let us say the rhesus monkey, who ordinarily live in a social environment, and after ablation are placed back in the social environment, such surgery destroys their ability to integrate with their community. The practical result in general is that the rest of the primate colony attacks or otherwise excludes the animal from social contact. So much for the animal work, but in a way this is all relevant to man.

I really started all of this business quite accidentally, and some of what I have been telling you is retroflective. We started with a concern about ways of treating temporal lobe epilepsy, a concern shared in this instance by my neurosurgical colleagues at the Hospital, Drs. Vernon Mark and William Sweet, who were dissatisfied with current surgical approaches to that problem. Now let me digress for just a moment about temporal lobe epilepsy to say why that is relevant. Of all the forms of epilepsy, the seizures arising in the temporal lobe are among the hardest to treat. They are rarely adequately controlled with anti-convulsant medication, in contradistinction to all other forms of epilepsy, which are much better controlled. They are particularly fascinating because of the behavioral consequences of the seizure's state. These are seizures which, unlike those which influence only motor function, or only consciousness, or both, give rise to complex alterations in the state of the brain. Hughlings Jackson, when he first described these states effectively in a classic paper, called attention to the fact that the dreamy states were an interesting clue to certain kinds of psychopathology usually treated by psychiatrists. In his paper, he suggested that understanding of psychomotor epilepsy—the dreamy states as he called them at that time—was the royal road to the understanding of insanity. He may have overstated the case a bit—we have not entirely solved the problem of insanity—but what he correctly perceived is that this interesting sydnrome, in one patient or another, and at one time or another, reproduces practically all of the psychopathological phenomena that we are accustomed to dealing with in psychiatry. One may find changes in perception, changes in sense of body image, changes in thought. One may find excessive ruminations, intrusive thoughts, distortions of the

view of the rest of the world, hallucinations, affective states, particularly of fear, of depression, occasionally of rage, and (as Dostoevski pointed out really better than anyone else) of ecstasy, a state not frequently described in neurological literature.

The fact that these psychopathological phenomena—cognitive, perceptual and affective—can arise in relationship to a reversible, intermittent and recurrent dysfunction of a known part of the brain suggested to me quite some time ago that they should be the subject of an interesting natural experiment in behavioral neurophysiology, the like of which could not be replicated in man easily. Now, the temporal lobe epileptic, other than being difficult to treat (to control his seizures), and showing fascinating symptoms, has another characteristic. I am speaking now of a sub-set of the total population. Temporal lobe epileptics are no more a homogeneous population than any other population, but some number of them have as a characteristic of the inter-seizure period, when they are not afflicted with the sacred illness, periods of time when they are "very difficult." They are emotionally cantankerous, irritable, a little paranoid, hard to live with, hard to keep as employees, and so on. There has been a debate for some time as to whether one should best understand that disorder, noted by many people over the last half century, as being a consequence of the shabby treatment that we, as a society, deal the epileptic in growing up. If one grows up, kicked out of school, embarrassed at work, losing girl-friends, losing jobs, who is to be surprised if by adult life one is a little irritable and slightly paranoid? Others have felt that this, too, was a part of the syndrome of having a diseased temporal lobe, manifested at one time by temporal lobe seizures and at another time by affective disorders. Particularly instructive are some of those individuals who have not just this irritable state, but who have episodic loss of control and, in fact, attack, injure and damage others, frequently to their own dismay, frequently causing them to seek help from a physician. We began to look at some of these individuals with the unique facilities that we had developed for stereotactic surgery. As we were trying to develop minimal surgical interventions for the treatment of their epilepsy, we made fortuitous observations about their behavior.

What I would like to do now is take you through a few case histories which lay out some of the phenomena we have seen which we think relate specifically man's limbic system dysfunction to certain kinds of violent behavior (1, 2). Our approach to this problem is to place within the brain what to the surgeon is an electrode strand and what is to the physiologist a series of recording and stimulating points. We use two strategies in inserting these: one or two parallel electrode strands are placed in either side of the brain, or one sagittal strand is inserted with another one perpendicular to it, coming from the side. They have different technical utilities. What we do is place these tiny wires in the brain at surgery, lock them into place with a very special technique, and then try over the next several days to several weeks to define an optimal site within the brain to make a destructive lesion to reduce the epileptic seizures. This is a technique that has been developed over the years since 1932. It was first used in this way with chronic implantation in man by Robert Heath of Tulane and has been used by many people since in one or another form. The technique is straightforward, though dramatic.

One of our cases was a brilliant, young engineer who was referred by his psychotherapist. The psychotherapist was, incidentally, a very perceptive man, who after several years of psychotherapy in dealing with this young man's marital problems, recognized that in spite of considerable improvement and resolution of his basic neurotic problems, the patient's impulsive attack be-

havior was out of proportion to the neurotic problems which contributed to it. This young man had a history of such acts as burning holes in and attempting to stab his wife, battering down doors in his house, trying to shoot the neighbors, and so on. It is not that these acts were totally irrational, not understandable events, but that their intensity and frequency were out of proportion to what the psychiatrist then understood about the psychodynamics of the case. Ultimately, he was clearly diagnosed as having temporal lobe disease which was not controllable through medication. After a long period of time, he came to surgery.

Two parallel electrodes were inserted. We recorded the patient's words describing what he felt on stimulation at identical physical parameters on different occasions. Over a period of days, for example, at certain initial points, he said things like "I feel far away," "I'm super relaxed," "I feel pleasant," "I feel dissociated," "... detached," "confident," and so on. In a similar lateral strand, we again elicited reports like "pleasant," "hopeful," "pleasure like Demerol," "confident," and the like. But just medial by about 3 mm., we got comments such as "My teeth ache," "I'm losing control," "Everything is wild," "My face is painful," and so on, i.e., dysphoric responses. Now what I should like to emphasize is that the specific words, the specific report, were not constant from day to day. I was not simply playing the same record day after day, but I was inducing states which are in general dysphoric, and the specific content of which is drawn from other immediate variables in the environment. In one area the responses were pleasurable, relaxing, detached; in another just medial area, they were mostly unpleasant.

Another case involved a young woman who had committed two murders, several assaults, and who was suspected of having brain disease requiring surgery (which in retrospect turned out to be wrong, as a matter of fact). An electroencephalographic record of the depths of her brain at a time when she was quite relaxed was strikingly symmetrical. A trained eye could see some evidence of disease there, but it was a rather regular record. This patient posed us a serious problem, because we were really trying to help clarify some things about her legal competence, among other things. She was frightened, not too articulate, and had given us few clues as to her illness. Nor was her record of much help to us. We had no reason to look at this and believe that there was a diseased state that had anything to do with her recurrent behavior disorder.

We picked up on a suggestion from one of my residents (that is where good ideas usually originate) that since each of her attacks had been on a crying baby, and both of her murders had specifically been crying babies, perhaps we should try her with a crying baby. I agreed that that was quite appropriate, and we tape-recorded the crying voice of his new infant. We used a record of his crying baby and turned it on while interviewing her in the room. Her previously homogeneous EEG record changed abruptly in two sites, specifically in the amygdala and the hippocampus, 40 seconds after the crying baby sound was turned on. In that state she changed from her usual placid self to looking angry, looking somewhat confused, and speaking quite sharply to the doctor. Eight seconds later the activity spread somewhat. She broke down and began to cry, quite upset under questioning, so we then turned off the tape-recorder for two minutes, and the EEG record returned toward normal. She sat alone in the room, and we went back to talk to her about what happened. Specifically, what happened (without going into all of the details) was an event which she had experienced before on many occasions: a feeling of confusion, a combination of anger and fear, as she described it, and of not understanding what was happening in the world. She had never told us about this in

spite of considerable questioning, because she assumed it was a normal state that everyone experienced.

Another of our cases was a young lady with two attempted murders to her credit, both stabbings: one, a knife through the heart, the other a pair of scissors through the lung of an attendant nurse. She had a record of numerous other attacks, including recurrent assaultive behavior on the ward. It was a problem for us to clarify both theoretically and in practical terms just how one should understand her past behavior. Although we could define easily the extent of her known brain disease (as a consequence of a viral encephalitis in childhood) and her known epilepsy which she had had for many years, the relationship of the attack behavior was not clear. Again, in the laboratory environment, sitting in a chair (while kindly, bearded Dr. Ervin ministered to her), with many wires connected to her head, she on no occasion exhibited attack behavior. I suggest, parenthetically, that as in the case of the cat, the environment is important. In this case, we turned to using telemetry and tele-stimulation with her in her ward environment, with which she was familiar, and had again a chance to look at altered brain function in parallel with spontaneous behavior. During the control period, the EEG record was extremely regular. Eighty seconds after an electrical stimulus to the amygdala, on stop-frame analysis of the movie camera, we could see that she was beginning to show some facial grimacing and was looking "angry." One hundred forty seconds later we could see the beginning of abnormal electrical activity. At that point she was clearly out of contact with the individual who was attempting to interview her. She next turned to attack the wall, smash the guitar she was playing (missing her psychiatrist's head by a few inches), and fling herself on the floor, wildly beating and screaming. There were 150 seconds of that. Five minutes later, as she was recovering, one could see the electrical effects of the seizure state.

Now, what this suggests is less interesting than what we could see with her. If, while the attack behavior was going on (whether elicited by electrical stimulation or spontaneously by the ward environment), the lateral amygdala strand (in that region previously defined as the source of relaxed, pleasant feelings) were stimulated, the angry, aggressive attack behavior would terminate. This is an important theoretical point. Let me emphasize three things drawn from this limited human experience. I should like to be quite categorical about them, since I seem to be regularly misunderstood. We have not done very much surgery. Our experience over the last ten years has been with twenty-two patients. They have been studied intensively, with all of the tools at our disposal (although in retrospect we find that there are others we might have used in addition). We are not, in any sense, advocating routine surgery for every individual who is violent. In fact, we have not operated on any patients for their violence. We have operated on them for their intractable temporal lobe epilepsy. We have been interested to see whether in so doing we would modify their recurrent violent behavior disorder. Our therapeutic results to date are not overwhelming. We have cured some people of their epilepsy; we have cured some of their behavior disorder; we have cured some of both; and we have cured a number of neither. There are interesting theoretical points here, too, about the separation between the behavior disorder and the epilepsy in terms of therapeutic results. We have, we believe, seen the three following things, which gain much of their credence from the much more extensive animal work that has been done:

1. One can identify in a man with a diseased brain a limbic system which, when stimulated either spontaneously (as defined by electrical recording) or deliberately by electrical manipulation, will respond with

directed, efficient, conscious attack behavior in the proper environmental setting.

2. That behavior, that dysfunction, can be countered even in the diseased brain by appropriate electrical stimulation in an associated amygdaloid structure.

3. Finally, destruction of that part of the medial amygdala which seems to be diseased, by electrical criteria as well as clinical ones, can sometimes lead to abolition of rage dyscontrol. Now, the last conclusion is backed up also by very extensive experience of a number of other surgeons around the world: Narabayashi and Sano in Japan, Vaernert in Copenhagen, Heimberger in Indiana, Talairach in France, to name some. To some extent, all have had substantial experience with using amygdala lesions to control recurrent, violent, assaultive disorders in a variety of situations. So there is prima facie evidence that the logic is at least consistent.

I have two concluding points:

1. I suggest that the demonstration in man, as well as the confirmation in animals, that there are strong neural systems which are balanced and ordinarily counterposed to the expression of rage and violence allows one to think about the recurrent questions about the "nature of man as an aggressive animal" in quite a different way than it has been perceived for the last three thousand years. If we are to understand that there is available to the brain an efficient pre-programmed mechanism to be used for the preservation of the individual in the appropriate setting, that it can be called upon when the world is perceived as too threatening, and that there are strong mechanisms which can turn it off upon appropriate signal, we then come not to issues of whether man is instinctively aggressive or destructive, but to questions as to what ways the instructions to that behavior are miscarried, misinterpreted or misapplied. I am suggesting that, in the individuals about whom I have been talking (those with very diseased temporal lobes), one of two things has occurred: a., that the presence of physicochemical disturbance we call epilepsy gives rise to erroneous signals; that the computer is confused by being "turned on" by a spurious local signal rather than by a signal from the rest of the brain; or, b., that the damage has led to an impairment of the inhibitory mechanisms which are ordinarily called into play before this system is completely operational.

Let me give a specific example. A common complaint of many of the patients (I am speaking of a population beyond this surgical group) is that they are frightened to drive in the city. They are perfectly happy to be driving on the highway, but on driving in the city, they say, "There is always somebody who cuts me off (at the rotary, in Boston), and I floorboard the car and smash him." Now, the ordinary response of Boston audiences to that statement is an embarrassed titter across the room, but even you know the feeling. I submit that there are times when you, too, have rammed your foot at the accelerator; but you stopped it, and you do it within about 150 milliseconds. My patients cannot do that. They do not stop. And indeed they are in recurrent automobile accidents. More than sixty percent of the last two hundred I have studied report that they have used the car at least once in an attempt to kill. They are, in fact, part of the hazard of the highway. Either the trigger zone miscarries, or the inhibitory system is impaired and does not work. I am not sure which. I suspect there are cases in which one or the other is true, and they should be defined.

2. This is not a philosophical but a practical point. Does this really have anything to do with the real social world? Granted that we have found a few bizarre cases of temporal lobe epilepsy who seem to be also having some violent behavior, does this have any relevance to everyday problems? We asked that question too. We asked, "Might it be the case that there are individuals who have unsuspected brain disease, do

not present with classic temporal lobe seizures, but indeed have this kind of affective dyscontrol?" We asked our young friends in the acute psychiatric service to refer any patients who seemed to fit into this category to us. As you know, that is a poor way to do research, but in this instance, we promptly received two to three referrals a day.*

Three percent of the twelve thousand annual visits of the last year when statistics were done came with a chief complaint of anger, aggressive behavior or loss of control. This is what brought the patient to the hospital, as if he were worried about the fact that *he* beat up other people. I keep saying "he" because statistics are ten to one males over females, an interesting chromosomoendocrinological or socio-cultural phenomenon. These men come with hair-raising accounts. Of the 134 we have recently reported, eight are multiple murderers by their own confession. One of those came to me saying, "Doctor, I have just walked out of a grand jury hearing. I was released on a murder charge, but I did it. He was a friend of mine. I have nearly done it before; I'm sure I'll do it again; you've got to do something to help me or I'll commit suicide." One such chap said, "Doctor, I am glad to see you. I've been here twenty times in the last eighteen months, on each of the occasions that I have been arrested for assault, assault with a deadly weapon, attempted manslaughter, asking for help, and each time I have been dismissed from the hospital." In fact, his record demonstrated that each time he had been consistently diagnosed as a sociopath and turned away. There are such people in the world. There seem to be more of them than one would have guessed at first glance.

Obviously, one of the things that I would like to be able to say is how many of these people have covert limbic system dysfunction; I would like to test my strong hypothesis. Having started the study, it occurred to us that adequate testing procedures needed to be developed. Have any of you looked up recently tests for limbic system dysfunction? They are not easy to come by. The best one can do is to fumble around with the EEG and to look at associated things like visual fields and to try to trust some neuropsychological testing. All in all it is not very satisfactory. However, using those inadequate tools, we found out something that rather surprised me. Even with those tools, we found that 28% of the group had clear evidence of anterior temporal lobe dysfunction, including the finding of an anterior temporal lobe spike focus, almost the only EEG abnormality which does not occur frequently in a random normal population. If one uses the extreme figures, 12% of a general population has an "abnormal EEG," so we were two to one over that in finding that abnormality. That turns out to correlate with some interesting figures from England where Dennis Williams in studying a group of murderers was able to discriminate between those individuals who were arrested and convicted for a single murder of what he called a motivated kind (a husband shooting wife and lover) and those considered "unmotivated," usually carried out by individuals who had histories of recurrent violent behavior.

We had one such murder in Boston last week. There was a man sitting in a bar. A neighboring patron said, "Hey, can I borrow a cigarette?" "Yes, sure." Man B took the cigarette out, lit it, took the cellophane off the package, crumpled it, and threw it to the floor. Man A said, "Put the wrapper back on the cigarette pack." Man B implied that he wouldn't do it. Man C said, "Oh, come on, don't make a fuss. Put it back on." Man B says, "I'll do it for you, but I won't do it for him." Man A pulls a gun and shoots him dead. That's what Williams would call, I think, an unmotivated killing as opposed to a motivated one. Unmotivated killings in William's study were five to ten times more frequent in the individu-

* With Doctors J. Lion and G. Bach-y-Rita.

als with temporal lobe pathology in the EEG than were single motivated killings.

The next question was "If brain disease is common in these people who bring themselves into the hospital and are concerned about their problem, who perceive their episodic dyscontrol as ego alien, as uncomfortable, and as threatening (so much so that 80% of them have made at least one suicide gesture before coming to our attention), what goes on in a prison?" So we went to look at a prison.* It might be said that we cheated; we did not examine a random assortment of prisoners. We really wanted to test the notion that somewhere in that prison there were probably people who had biological dysfunction, and so we picked the four hundred most difficult people out of the thirteen hundred men in the prison. We interviewed enough to get eighty-four volunteers out of the first hundred interviewees, and we have detailed studies on biological function in these eighty-four people. There were a couple of interesting results. First, these prisoners have a very high frequency of chromosomal abnormalities (quite consistent with the recent literature on the subject), about 7%, or approximately thirty-five times the incidence in newborn babies. Many of the individuals could be independently defined as genetically peculiar in neural-ectodermal development by an examination of their finger and handprints; and although that population dermatoglyphically selected included all the chromosome abnormalities, it selected another non-identified population. Second, the incidence of brain dysfunction was very high, but difficult to evaluate in this population.

* With Doctors L. Roth and L. Razavi.

All in all, to make a complicated story very short, the men in the prison did not look so different from the people who walked in to see us. They were a little less intelligent, a little poorer, more likely to come from inner-city New York, Philadelphia, or Washington; but they had not done anything different from the people I already knew about. They had done the wrong thing in the wrong place at the wrong time. Of our out-patient group, I mentioned the eight murderers, but 60% of these self-referred people had a history of at least one arrest and a conviction for a crime of personal violence.

That is where we are today. We are at a point where we think that there is a plausible theory for a neural mechanism which could account for certain kinds of personal violent behavior. We think that it is of relatively frequent occurrence; we think that it accounts for some number of the people who enter the criminal justice system and who might be adequately diagnosed and perhaps treated by good routine medical work-ups, which are not at the present time carried out anywhere regularly. We do not feel that this is the major source of destructive violence in our turbulent world, but it is one of practical everyday importance to which enlightened medicine can make a positive contribution.

REFERENCES

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Memoir of David Bacharach Allman 1891-1971*

By GEORGE WILLAUER, M.D.

David Bacharach Allman, M.D., was a man of near legendary activity and of uncommon generosity. He was a man whose "retirement" consisted of appointments from 8:30 to 6 with any number of interruptions resulting from his vast philanthropic endeavors, the most prominent of which is the Betty Bacharach Home for Children, Longport, New Jersey. Countless friends and acquaintances could testify that he was a man whose time was always precious and the pace never seemed to lessen until that brief period before March 30, 1971.

A graduate of Jefferson Medical College, Dr. Allman was a president of its Alumni Association and an alumnus founder of the Thomas Jefferson University and was elected by his fellow alumni as a trustee of Thomas Jefferson University. On June 4, 1957, he was inaugurated as the 111th president of the American Medical Association, his venerability having been firmly established as chief of surgical services at the Atlantic City Hospital, an institution he served for thirty years. He had also been a member of the association's board of trustees and had served as a member of the committee on legislation, whose purpose was to study federal legislation affecting public health.

Dr. Allman met Miss Katherine Bothwell during his internship, and they married in 1922. This marked the beginning of Mrs. Allman's long and active interest in medical affairs, which in time culminated in her membership in the Women's Auxiliary of the American Medical Association and her election as president of this body in 1949. Later, when Dr. Allman was named president-elect of the American Medical Association in 1956, the event marked the first time that a husband and wife had ever been elected to this august association's two highest offices.

His career was distinguished by his many activities, beginning with a citation from the United States Navy for his services in World War I and another from the United States Public Health Service in recognition of his work as a surgeon during World War II. He was the recipient of a gold citation from the Medical Society of the State of New Jersey for his many years of service to that organization. He was also the honorary chief surgeon of the Atlantic City Fire Department, having previously served gratuitously the police and fire departments in that city for thirty-five years and for many years was the official physician for the Miss America Pageant.

Dr. Allman had been a former officer, fellow, or member of innumerable medical and humanitarian organizations. He was a fellow of the American College of Surgeons, American Medical Association and International College of Surgeons, a diplomate of the American Board of Surgery and past-president of the New Jersey State Board of Medical Examiners.

As a teacher, Dr. Allman is described by his former students as excellent. He was looked upon as a complete surgeon with an uncanny diagnostic ability and sound surgical judgment in the operating room, frequently to the wonder of both interns and residents alike.

* Read before The College of Physicians of Philadelphia, 8 December 1971. Prepared and published at the request of the Council of The College of Physicians of Philadelphia.

Dr. Allman was a humanitarian, a truly kind and generous man in his relations with students, associates and especially with patients. In the course of his private practice he freely gave his professional services to innumerable persons.

Dr. Allman often recalled his early medical training as the most enjoyable years of his life. Although a man on the move to dispatch his responsibilities, he always had time for those who needed him. The life of David Bacharach Allman was one of singular purpose, dependable generosity and exceptional talent put to worthy use.

Memoir of Joseph Thomas Beardwood, Jr. 1896-1970*

By J. RODERICK KITCHELL, M.D.

Joseph Thomas Beardwood, Jr., M.D., was born on May 15, 1896. He attended the William Penn Charter School and the University of Pennsylvania. He was graduated from the School of Medicine of the University of Pennsylvania in 1921. He served his internship at the Presbyterian Hospital in Philadelphia from 1921 to 1923. At this institution he acted for a time as Chief Resident Physician; then, going through the various ranks, he became Chief of the Medical Service.

He engaged in the private practice of internal medicine in Philadelphia and Abington until the time of his death, with staff appointments at Presbyterian, Graduate, Philadelphia General and Abington Hospitals. For many years he was Director of the Division of Diabetes and Metabolic Diseases at the Graduate Hospital and was Professor of Medicine in the Graduate School of Medicine at the University of Pennsylvania. He served as Medical Director of Abington Memorial Hospital from 1943 to 1964.

His chief interests lay in the fields of diabetes and metabolic disease, and he was very active in many organizations concerned with these areas of medicine.

Dr. Beardwood was co-founder of the American Diabetes Association, its president from 1940 to 1942, and for many years he served as chairman of the committee on insurance and employment of diabetics of this association. He was a founder of the Delaware Valley Diabetes Association and its camp for diabetic children, Camp Firefly, the second in the nation to be devoted exclusively to diabetic children. He was a member of the President's Committee on the Employment of the Handicapped.

Dr. Beardwood was a diplomate of the American Board of Internal Medicine, a fellow of the American College of Physicians and a fellow of The College of Physicians of Philadelphia, as well as a member of the science fraternity Sigma Xi. In addition to being Medical Director at Abington Memorial Hospital, he was Chief of Medicine and Chief of Metabolic Diseases and Endocrinology at Abington from 1931 to 1964. He also established the Diagnostic Clinic in 1946.

He was author and co-author of about 30 papers concerning diabetes and metabolic diseases and was co-author (with H. T. Kelly, M.D.) of a very successful manual, *Simplified Diabetic Management,* which went through seven editions.

Dr. Beardwood was a highly skilled and compassionate clinician, deeply interested in the welfare of his patients, with a personality that added greatly to his effectiveness. As a youth he showed much interest and aptitude in athletic sports, being a pole vaulter (on the University of Pennsylvania track team) as well as a gifted golfer, tennis player and swimmer. He was a member of the Doctors' Golf Association. He was an expert bridge player and was a member of the Inter-Hospital Whist League.

His personal charm, gregariousness, and lively interest in people won him a host of friends. His circle of friends widened steadily during his years of practice. For many years he maintained offices in the center of Philadelphia as well as at Abington Memorial Hospital. During the latter part of his career, he confined his work to Abington.

* Prepared and published at the request of the Council of The College of Physicians of Philadelphia.

Despite a series of major crippling disabilities, he continued limited practice at his Abington office during the last two years of his life. He died on April 11, 1970.

Dr. Beardwood is survived by three children: Joseph T. Beardwood, III, Mrs. Deborah Mary Lynch and Donald Matthew Beardwood, M.D.

It is hard to summarize fittingly or to comment on a life so totally and unselfishly devoted to serving mankind, and to phrase a closing sentence to a memoir I found difficult to write. Therefore, I will borrow these cogent words from the philosopher and author, Machiavelli: "It is not titles that honor men, but men that honor titles."

It could be so said of Joseph T. Beardwood, Jr.: physician, teacher and friend.

Memoir of Samuel G. Shepherd 1880-1971*

By ALBERT J. FINESTONE, M.D.

Samuel G. Shepherd, M.D., who practiced in Philadelphia for sixty-five years until he retired in 1968, died Friday, September 10, 1971.

He was born in Philadelphia on July 4, 1880, and was educated in Philadelphia schools. He was graduated from the Department of Pharmacy of Medico-Chi. College of Philadelphia in 1900 and from the Medico-Chi. Medical College in 1903.

In his early years, Dr. Shepherd practiced general medicine in South Philadelphia. In later years, Dr. Shepherd specialized in internal medicine and cardiology. In his long medical career, Dr. Shepherd was on various hospital staffs, including Jefferson and Graduate, and for 38 years he was on the staff of Presbyterian Hospital. At the time of his death, he was Physician Emeritus of the Presbyterian-University of Pennsylvania Medical Center.

In 1916, he became a member of the Philadelphia County Medical Society, The Pennsylvania Medical Society and the A.M.A. He was a Fellow of the American College of Physicians, the American College of Cardiology, The College of Physicians of Philadelphia, the International Society of Internal Medicine.

He was president of the Medical Club of Philadelphia and president of the Aesculapian Club. He was a member of the Fifty Year Club of American Medicine, a member of the St. Andrews Society of Philadelphia, and a Mason.

He is survived by his wife, the former Jeanette Adler.

So much for the facts of Dr. Shepherd's life. What can those of us who remain gather from this? I knew him well for the last twenty years of his life and attended him during his last illness. He was an accomplished physician whose vocation and avocation was medicine, although he had many other interests and hobbies.

Respect for his profession and his natural warmth as a human being produced his sincere interest in the medical and non-medical problems of his patients. He did this without evoking a label of psychosomatic medicine. His courage, optimism and joy for life were demonstrated to me when he insisted on keeping his weekly bridge game several hours after sustaining a mild cerebral thrombosis.

I do not recall ever hearing him complain, and he seemed always grateful for the challenges of life and the opportunity of being a physician. This is the message of Sam Shepherd's life.

* Prepared and published at the request of the Council of The College of Physicians of Philadelphia.

Report of the Secretary for the Year Ended December 31, 1971

Stated Scientific Meetings:		*Attendance*
January	The 19th S. Weir Mitchell Oration Osler L. Peterson, M.D.	175
February	The 100th Mary Scott Newbold Lecture Bruno Bettelheim, Ph.D.	600
March	The 12th Benjamin Musser Lecture on Clinical Medicine Hector F. DeLuca, Ph.D.	98
May	The 53rd Nathan Lewis Hatfield Lecture Frank R. Ervin, M.D.	95
October	The 1st Catharine Macfarlane Lecture on Cancer Control C. Gordon Zubrod, M.D.	162
November	The 30th Alvarenga Lecture Donald B. Effler, M.D.	145
December	The 50th James M. Anders Lecture Donald B. Louria, M.D.	150

* * * * * *

Regular Business Meetings:	*Total Ballot*	*Total Ballot on Revised Chapter I, Bylaws*
January 6, 1971	209	
February 3, 1971	301	
March 3, 1971	210	217
May 12, 1971		
October 6, 1971		
November 3, 1971		
December 8, 1971		

September 22, 1971 ..... Reception, Cocktail Party and Dinner Honoring Olga Ellen Lang.

December 7, 1971 ..... Reception and Cocktail Party for Friends of the College given by the Executive Board of the Women's Committee of the College.

Sections of the College:	*Membership*
Insurance Medicine	13
Medical History	145
Ophthalmology	140
Otolaryngology	38

Membership

	Fellows	Non-Resident	Honorary		Honorary Associate	Total
			Foreign	USA		
December 31, 1970	1,153	173	1	5	4	1,336
Died	−15	−5			−1	−21
Resigned	−11	−5				−16
Elected	40			1	1	42
Transfer from Resident to Non-Resident	−17	17				
Transfer from Non-Resident to Resident	3	−3				
December 31, 1971	1,153	177	1	6	4	1,341
Life Membership, New Type						
Under 70	8	3				
Over 70	29	7				
Old Type (commutation dues)	5	0				
	42	10				
Dues remitted as of December 31, 1971	53	16				
Annual contributors as of December 31, 1971	1,058	161				

John L. McClenahan, M.D.
Secretary

Report of the Treasurer for the Year Ended June 30, 1971

GENERAL FUND

	1971
Income (other than gifts and bequests)	
College General	$238,918
Library	76,219
Medical Documentation Service	83,133
Separately Financed Programs	322,868
Transfer from Development Fund Number 2	10,718
Total	731,856
Operating expense	
Hall Committee	80,157
Library	253,607
Medical Documentation Service	105,647
College Collections	6,568
Publications	11,408
Secretary-Treasurer's office	52,872
Executive Director's office	24,145
Employee benefits	38,351
College General	22,120
Separately Financed Programs	236,365
Entertainment Committee	2,468
Total	833,708
Loss (before gifts and bequests)	(101,852)
Gifts and bequests	7,631
Net income (loss)	$(94,221)

The audit was conducted by Main Lafrentz and Co. and complete details concerning the audit are available to the Fellows in the office of the Executive Director.

Donald M. Pillsbury, M.D.
Treasurer

Annual Report on the Library*

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Library Historical Collections: W. B. McDaniel, 2d, *Curator*
Lisabeth M. Holloway, *Associate Curator*
Mid-Eastern Regional Medical Library Program: Carol C. Spencer, *Director*
S. Weir Mitchell Associates and Resource Grant Activity: Beatrice F. Davis
Assistant to the Librarian
Medical Documentation Service: Alberta D. Berton, *Director*

The College Library—1971

Last year's report prophesied for 1971, "anticipated fiscal restrictions both within the College and at federal funding levels forecast a Spartan program." There is no comfort to be gained from the fact that the prophecy was fulfilled beyond the reaches of the worst pessimism. The real story of 1971 is the reasons for the fiscal predicament, the effort to live with it, and its implications for the future.

The predicament. In its simplest terms, the problem is one of ever-increasing costs and stable or decreasing income levels. Temporary cost-cutting expedients are being employed but the only long range effective solution is a broadening of the sources of financial support for the College and its Library. Since the College Library is a service agency benefitting the entire community, this answer seems natural and inevitable. The College Library constitutes such a large proportion of the activity of the College that problems of the whole and of the part are the same.

An operating deficit for the College of unanticipated proportions for 1970/71 (almost $100,000) and an anticipated deficit for 1971/72 present a built-in predicament that fosters daily anxiety, eroding administrative and staff morale.

Economics. Budget balancing efforts take two forms. The Library administration has implemented cost controls and has intensified fund-raising efforts among the library constituency. All cost control efforts, however, must be considered in the context of reduced service to the College Library's individual and institutional users. As the Library's community effectiveness decreases, its image of public services fades and diminishes the enthusiasm of its friends to support a less useful source of medical literature and information.

Services. Enforced budget cuts inevitably led to the discontinuation of evening and Saturday hours of opening. This reduction of service permitted the elimination of four part-time positions and the reduction of the regular paging staff by one person. Some library users whose schedules preclude daytime visits to the College Library are inconvenienced and seek other, less satisfactory sources of medical literature. Their good will and potential support go with their use.

Salaries. Because the salary budget is the largest single expenditure, it is the prime target for cost control. The College found no alternative to skipping raises or costs of living adjustments and implementing a modified job-freeze. A loyal and dedicated staff responded miraculously well to this call for additional sacrifice by personnel whose salaries have traditionally been below competitive rates in similar institutions. Of course, it unfortunately coincided with a year when a state income tax was imposed, the city wage tax was increased and cost of living increases amounted to about eight percent. This together with acknowledged pen-

* January 1–December 31, 1971.

sion plan inadequacies tests the morale of even the most enthusiastic staff member. The recruiting of competent personnel is also made more difficult by low salary levels.

Serials. Over $50,000 is spent annually for journal subscriptions to fulfill the College long-recognized function as a regional medical library. The College role in the community is performance as a back-up, resource library with in-depth collections relieving neighboring medical libraries of the expense of equally intensive acquisitions policies. The economic problem is that community institutions do not share their savings with the College to a sufficient degree to meet cooperatively the costs of one comprehensive collection. This year's Annual Report reveals a reduction in the number of journals currently received from 3,212 to 3,081.

The diverse use of a resource library's journal collections is illustrated by an incomplete study of the use of the College Library. Between February 8 and September 30, 1971, the library made 1,899 different titles available to requesters. If regional requests had been studied during the early months of this survey instead of only Reading Room use, the total would have been higher. An extensive journal collection may be the Library's most significant asset.

Further reductions this year included cancellation of subscriptions to the *Zentralblätter* and *Berichte* which are primarily abstracting and review journals not presenting original materials. This trimming of titles, not generally received by other libraries, saves slightly more than $1,000 per year. In addition, about 193 titles from the list of journals received from the European agent were scrutinized by the Library Committee on the initiative of the library administration. Special attention was directed to journals not covered by *Index Medicus* and publications emphasizing organizational news and secondary reports.

The effect of this painstaking culling is quickly offset, however, by rising subscription costs. Price increases of fifty percent by one prominent Swiss publisher easily erased hard-earned economies. The Library is already feeling the impact of the devaluation of the dollar. This is especially significant because local libraries have traditionally looked to the College as the only regional source of most of the foreign language journals. From among the Library's 2,068 subscriptions, 1,451 originate outside the United States.

The Library also suffers from the expanding policy among domestic publishers of establishing discriminatory subscription rates which penalize libraries as compared with individual subscribers. This is ironic since free access to libraries constitutes a subsidy to journal production costs as their contributors depend on libraries to review the literature.

Further Library economies have been achieved by drastically curtailing book purchases, reducing the frequency of the Booklist, foregoing insurance on the collection, and elimination of a travel budget. Some of these measures, too, may be counter-productive as they reduce the effectiveness of the Library as a regional facility.

The Library's record of Spartan administration is documented by the limitation of operating cost increases to 4.4 percent between 1969/70 and 1970/71.

Library-produced income. Unlike most libraries, the College Library has long made concerted efforts to produce income as well as to spend money. This year the Library administration is committed to raising over $70,000 by selling photocopies, selling duplicates, registering individual and institutional borrowers, levying fines, renting stack carrells, soliciting contributions, and marketing bibliographic services to agencies not eligible for free regional assistance or whose needs exceed normal levels of service.

Serious attempts have been made this year to further increase these unusual sources of library support. Photocopy charges have been revised in an effort to more nearly re-

flect the cost of this service. Unfortunately many medical schools and other producers subsidize photocopy rates by charging less than cost. The impact of these rate changes on the volume of College work is not yet known.

Medical Documentation Service rates have also been revised upward to recover general operational costs not heretofore included in charges for time actually spent on each assignment. Thanks to Mr. William Lutz, the Comptroller of the College, we now have, for the first time, a dependable basis on which to insure that costs of this service are met by its beneficiaries. New charges are calculated to recover both direct and indirect costs.

Grant activity. Not included in the $70,000 Library-produced income, cited above, are benefits derived from government grant and contract activity in the form of sharing College overhead costs and by placing part or all of some regular library salaries on grant funded projects. Applications were prepared by regional library staff for the transfer of regional medical library support from grant to contract funding, for research grants related to regional reference services and advisory or consultation programs with hospital libraries. New applications were proposed and submitted to divide the card catalog into two chronological subdivisions and to shift the library collection to provide growth space and better arrangement in the stacks.

Q.E.D. The Library administration believes that all possible operational economies have been explored and implemented, including some which may not be in the long-range best interest of the Library. Furthermore, heroic efforts are being made to augment library-produced income. What remains to be done, is to aggressively explore methods of securing more widespread community support of a facility which benefits all segments of medicine to a greater degree than it benefits the relatively small Fellowship of the College.

Existing outside support. Incredible as it may seem, the College and its Library receive no financial support from organized medicine. No direct help is received from Philadelphia or nearby county medical societies, nor do state medical societies share the costs of services which benefit their members and provide an essential foundation for medical research and practice.

No direct support is received from municipal or state government despite the fact that the existence of the College Library saves these agencies money by relieving them of the necessity of acquiring and making medical literature available to the public.

Neighboring academic and commercial institutions presently contribute about $30,000 toward College Library total direct costs. These costs, exclusive of grant/contract funded activity and the Medical Documentation Service, exceed $250,000. In terms of actual use of the Library, this support should more properly be at least $100,000.

Alternatives. Sooner or later the medical community must decide between greater participation in the costs of a centralized facility or duplication of the facility. Less realistic is the alternative of higher dues for the Fellows of the College who already bear a disproportionate share of Library costs. It is predictable that increased dues would reduce the membership. Another rejectable alternative is continued deficit financing which would only conceal the problem and further weaken the College's fiscal position.

A major fund-raising effort by the College is another alternative. This course is complicated by the fact that most potential Fellow fund-raisers have another primary institutional affiliation with a medical school or hospital. Individuals with fund-raising talents are devoting their efforts to concerns which are more closely related to their primary professional base.

No inventory of alternatives could be complete without including an exploration

of new institutional affiliations or consortium participation. Medical community sharing in the decision-making process of the College is already assured by the fact that all Fellows wear at least two institutional hats. The possibilities of non-Fellow voice, at least in advisory and consultation capacities and possibly in the decision-making function should be explored to gain the more widespread community support without which the College cannot maintain the highest quality regional medical library service to the biomedical professions.

Construction funds and stack shifting. The need for additional stack space was documented in great detail in last year's Annual Report on the Library. This year, the Library Administration has continued its search for federal funds to add to the present building or to build a new annex structure on the former Erlanger Garage site.

Federal medical library construction funds were originally provided for in the Medical Library Assistance Act. Following limited expenditures for this purpose, the federal government discontinued construction support as a means of controlling building industry costs, and subsequently transferred the distribution of such funds from the National Library of Medicine to the Bureau of Health Manpower. The latter agency has decided that construction funds are now available only to medical schools and that the College does not qualify.

Faced with the dismal prospects of funds for building and an immediate shelving crisis, the Library Administration has reluctantly embarked upon a project of shifting the major portions of a collection of over 200,000 volumes. During 1971 a beginning was made on this complex reorganization by using Resource Grant funds. In view of the termination of the grant at the end of the year, a new grant application was submitted for money to complete this shift.

Space to initiate this plan was created by clearing duplicate and unprocessed gift material from the first floor of the New Stack. The next step was culling the Library's 19th-Century journals for transfer to the first floor of the Stack. The grant, if awarded, will permit the space provided by this first stage move to be utilized to divide the remaining journal volumes between the Old and New Stacks on the basis of date of issue. All of the 1940 journal issues and perhaps even the 1950's will be moved from Old to New Stack. This will provide more growth space in the Old Stack where the newer journals are shelved.

In terms of effort this is a very expensive method of gaining a few years' breathing space. It may be partially justified by the fact that it would be a necessary move if and when the 1969 recommendations of the Visiting (Berry) Committee are implemented.

New stack roof. The Library continued to be plagued by a persistent leak through the New Stack roof which defied the best efforts of the College maintenance staff and professional roofers to seal. At year-end it was uncertain whether the latest efforts had succeeded or merely that weather conditions made it appear so. An awkward problem is made worse by the location of the College Library's Historical Collections on the seventh floor directly beneath the unreliable roof. An exchange of seventh floor treasures with the less valuable sixth floor collections may be necessary to satisfy the curatorial conscience.

Gift of Henry J. Tumen, M.D. The Library gratefully accepted Dr. Tumen's offer to strengthen the Reference Collection by donating bilingual and polyglot medical dictionaries for use in the Reading Room. Prolonged use of these tools in other parts of the building suggested the acquisition of new dictionaries for Reading Room use only.

Building security. Demonstrated risks to members of the Library Staff from occasional intruders in the building led to the adoption of many security measures. Be-

hind-the-scenes areas have been closed to all but Fellows and Staff. Stack access is only granted upon written application documenting valid need. Persons using the Stack must apply for and wear identifying badges whenever they are in the Stack. A visitor's book has been placed inside the front door of the building and all visitors are asked to register. Recognition that no completely secure system can be devised is tempered by the realization that reasonable preventive measures are employed.

Institute for Advancement of Medical Communication. Miss Matilde Zalinski is the Acting Librarian of this Collection. The Institute Library is maintained on a standby basis without any attempt to add materially to its resources. Pre-existing journal subscriptions are maintained and access by qualified users is provided.

Merck Sharp & Dohme assistance. The Audio Visual Services Department of Merck Sharp & Dohme prepared a series of 35 mm slides of the College suitable for use with lectures. Mr. Carmen Buonfiglio, Supervisor of the Services and Mr. Jim W. Wallace were particularly helpful in the production of this presentation. Hopefully a taped audio lecture can be coordinated with the slides.

Evening use of Library. A study of evening use of the College Library was made during February, March and April. What might have been a well-documented case for continuing or discontinuing evening library hours became academic when fiscal pressures forced the closing of the library in the evening. The following data was collected from February 22 to April 5, 1971.

Total users		218
Repeaters		31
Fellows		11
(The 31 repeaters produced 82 uses)		
Average User Population per evening		17
(Repeater use constituted 14 percent of total use)		
Would be inconvenienced by closing		22
No	10 percent	
Slightly	37 "	81
Greatly	45 "	98
N.A.	8 "	17

Replying to the question of institutional affiliation, users cited 50 different institutions. Most cited were University of Pennsylvania 76; Thomas Jefferson University 44; and Temple University 23.

Current journal circulation. In November, the Library Committee authorized the suspension of circulation of current journals effective January 1, 1972. This action was originally proposed by the Visiting (Berry) Committee in 1969 and was requested by the National Library of Medicine in the contract negotiations for the period beginning June 1, 1971. Reluctance to take this step delayed implementation of the new policy until it became obvious that financial considerations also argued for the adoption of this policy which is already in effect in most other area medical libraries.

This new policy will immediately affect all unbound journal issues shelved in the Periodical Room and the latest issues of current journals which are shelved in the Library Stack until one month after their receipt. Exception is made for monographic journal issues because their size and copyright restrictions preclude their photoduplication. The Library will attempt to lessen the impact of the restrictions by encouraging the use of its photoduplication services.

Mrs. Kathryn Miragliotta. Mrs. Miragliotta's request for early retirement was granted after 42 years of conscientious, devoted duty to the College Library. She served as Assistant Cataloger at the time of her retirement. At various times she served as Secretary to the Hall and Publication Committees.

Personnel: The following staff members have left the employ of the College: Mr. Carmine Salvato resigned to study for a Master's degree in Special Education at San Fernando Valley State College. Mrs. Juneann Lauderbach found employment nearer to her home. Mrs. Linda Younkin found employment in her chosen field. James Butler decided to move to Maine, Mr. Thomas Askins transferred to the State University

of New York at Buffalo. Mrs. Veronica Convery is devoting her time to motherhood and home-making. Miss Sherry Sidler is seeking her fortune in Tulsa, Mr. Richard Lombardo is continuing his studies and Mr. James E. Smith completed his assignment with the termination of the Library's Resource Grant.

New appointments include Mrs. Rebecca P. Canfield, Cataloger; Miss Dorothy Allen and Mrs. Arlene Voll, Readers Service Assistants.

Miss Jackie Rustigian is Chairman of the Publications Advisory Committee of the Association of Hospital and Institution Libraries.

Miss Josefa Sereda was promoted to the position of Acquisition Assistant and is assuming many of the responsibilities formerly undertaken by Mrs. Miragliotta. Mrs. Judy Barnes has transferred from the Historical Collections Staff to the Paging Staff, Miss Jean P. Carr has transferred from the Medical Documentation Service Staff to the Historical Collections Department.

Miss Patricia Fox, Mrs. Juneann Lauderbach and Miss Josefa Sereda served on Jury Duty.

Additional personnel notes for the Regional, Historical Collections and Medical Documentation Service staffs, will be found in those sections of this report. The professional activities of Mrs. Beatrice Davis are noted in her section.

The Librarian served the Medical Library Association as a Director, a member of the Central Office and Finance Committees and as Chairman of the Program and Convention Committee. He accepted appointment to the Commonwealth of Pennsylvania Advisory Committee on Federal Programs. He participated in an Interlibrary Cooperation Workshop jointly sponsored by the Drexel University Graduate School of Library Science and the Pennsylvania State Library. He is a member of the Committee on Library Cooperation of the Union Library Catalogue of Pennsylvania and agreed to serve as Vice President of the Union Library Catalogue. In May he accepted an invitation from the Frankford Lions Club to speak on the College Library.

The proximity of the Medical Library Association's 70th Annual Meeting in New York City this year permitted attendance by many members of the Library staff.

Elliott H. Morse
Librarian

Library Historical Collections

1. Curator's Report

As has been the case for the major part of the last decade, the sum and substance of this department's activities in the year under review may be found inspirationally detailed in the succeeding report by the Associate Curator and Historical Cataloguer, Mrs. Lisabeth M. Holloway. By way of introduction, it may be thought sufficient to recall a memorable event that has been of considerable assistance to us in augmenting the library's historical collections. Mrs. Kehar S. Chouké (with a Fellow of the College, Dr. Harold D. Barnshaw, generously acting as middle-man) donated a sum that enables her to perpetuate, in practical fashion, the memory of her husband (1885–1967), a late Fellow of the College, by means of an S. Weir Mitchell Associate permanent subscription to the important British journal *Medical History;* and that enables us to purchase additional historical items which will similarly carry Dr. Chouké's name on the respective book-plates. It will doubtless be recalled by many that, in 1955, Dr. Chouké himself established the College's Hira S. Chouké Lectureship, in memory of his father. Copies of the following imprints, acquired during the year, now commemorate Dr. Chouké in the College library:

Blancard, Stephen. De kartesiaansche Academie. Amsterdam, 1685.

Dyott, Thomas W. Dr. Robertson's genuine patent and family medicines which are celebrated for the cure of most diseases ... Phila., 1810. [This ed. not in Austin.]

Gandini, Carlo. Gli elementi dell'arte sfygmica, ossia la dottrina del polso ricavata dall'antica ... Genoa, 1769.

Seitz, Joannes Nicolaus. Trost der Armen ... Nürnberg, 1740.

Vivas figuras de las partes del cuerpo humano. (Facsimile of ms. 35, Plantin-Moretus Museum, Antwerp, ca. 1576.) Brussels, for 'Medicinae Historia', 1970.

Other imprints acquired through gift or purchase:

Bernheim, H. N. Neue Studien über Hypnotismus, Suggestion und Psychotherapie. Übersetzt von Dr. Sigm. Freud. Leipzig u. Wien, 1892.

Buchan, William. Domestic medicine ... London, 1809. (gift of Craig W. Mucklé, M.D.)

Dieffenbach, J. F. Ueber die Durchschneidung der Sehnen und Muskeln. Berlin, 1841. [G. M. 4323]

Frambesarius, N. A. [Framboisière, N. A. de la]. Opera medica. Frankfurt, 1629.

Goodman, Herman. Collected reprints. 28 vols. (gift of Dr. Morris Goodman)

Grimm, H. N. Compendium medico-chymicum ... Augsburg, 1684.

Maine Insane Hospital. Reports (miscellaneous). 1840–1868, 1911.

Polli, Giovanni. Ricerche ed esperimenti intorno alla formazione della coténna nel sangue ed al suo valore sintomatico nelle malattie. Milan, 1843. (Author's presentation inscription on cover)

Reuss, Christian Friedrich. Dispensatorium universale ad tempora nostra accommodatum, et ad formam lexici chemico-pharmaceutici redactum. 2 vols. & suppl. Strassburg, 1786–7.

Schmidt, Peter. The conquest of old age. London, 1931.

[Taylor, William H.] The book of travels of a doctor of physic. Phila., 1871.

Vigarous [Bartélemi]. Opuscules sur la régénération des os, les loupes osseuses et les hernies. Publiés et augmentés par Vigarous de Montagut [Joseph-Marie-Joachim]. Paris, 1788.

Manuscript acquisitions:

Emerson, Gouverneur. [Case histories, notes on medical topics, transcripts of letters.] Phila., 1821–27. (gift of Mrs. David A. Cooper)

Krumbhaar, Edward Bell. [Diaries and notes during his journey to France, and service at Base Hospital no. 10, Le Tréport, Normandy, 1917–19.] (gift of Mr. Peter Krumbhaar)

Lucké, Balduin H. E. W. Tumors of the kidney, renal pelvis, and ureter [original typescript by him and Hans G. Schlumberger for Section VIII, fasc. 30, 'Atlas of Tumor Pathology of the Armed Forces Institute of Pathology.' Phila., 195–? (gift of Mrs. Lucké)

Medico-chirurgical College of Philadelphia [society]. Constitution, by-laws ... and minutes. Phila., 1848–58. (gift of Miss Margaret E. Gee)

Northern Dispensary for the Medical Relief of the Poor. [Register of patients, 1836–1920, 1923–24]

U. S. Army. Medical Dept. Morning report of the sick and wounded, various regiments ... June 1, 1865–March 30, 1866. (gift of the Univ. of Pa. medical school library)

University of Pennsylvania. Dept. of Medicine. Dept. of Anatomy. [Accounts of the Anatomical Chair, Oct. 1, 1839, to Feb. 1, 1853, in the hand of William E. Horner, M.D.]. (gift of Oscar V. Batson, M.D.)

Alia: A number of exhibits were prepared, based, as heretofore, on the programs of the College's Section on Medical History, significant dates and personalities in the history of medicine, and little-known facets of the library's historical collections; in certain instances, following well-established precedents, the Curators cooperated with the Curator of the Mütter Museum-Custodian of College Collections in the preparation of exhibits which would give a broad picture of the College's historical collections. The senior Curator's only quasi-platform involvement during the year was an after-dinner address delivered at the Wistar Party held at the College on 28 Oct. under the auspices of two distinguished Fellows of the College, Dr. Jonathan E. Rhoads and Dr. Joseph Stokes, Jr. Entitled "The Wistar Party and The College of Physicians of Philadelphia," it appears in printed form in the Jan., 1972, issue of the College's *Transactions & Studies.*

W. B. McDaniel, 2d
Curator

2. Report of the Associate Curator and Cataloguer of Historical Materials

During 1971, 1,249 items were put into the collection by the Historical Department: 224 books were accessioned and catalogued, and 510 pamphlets (these latter under a program funded by the American Philosophical Society). Eighty-three separate pictures and 63 documents and manuscripts

were catalogued or recatalogued. Volumes recatalogued numbered 143; volumes added, 109; analytics, 117. Cards totalled 13,225, of which 5,225 were for the portrait catalogue, and all of which were filed by the Department, except for 675, sent to the Union Library Catalogue.

The College's collections of items included in Robert B. Austin's *Early American Medical Imprints,... 1668–1820,* numbering approximately 840, of a total of 2,106, were microfilmed at the College, between April and June, 1971, by Research Publications, Inc., of New Haven, Conn., the result to be published in microfilm in the near future. The College is to receive a free print of the entire collection, as partial recompense for its cooperation, which occupied a very substantial proportion of Historical Staff time for about nine weeks. The patience and dependability of Miss Lynn McAfee is to be commended during this difficult operation.

In November, 1971, was terminated that part of the Historical Department's activities which related to sorting, searching, and cataloguing of pamphlets, under a grant made by the American Philosophical Society in 1968. Over the three years and two months of the program, 2,337 pamphlets have been fully catalogued, rehoused, and accessioned, including a number of early items of considerable rarity. Our obligation should be mentioned to Mrs. Elizabeth F. Bready, Miss Frances Wright, and Mrs. Eileen S. Myers, who served as part-time cataloguers in this program, and to Mr. (now Dr.) Steven J. Peitzman, who "searched" several thousand pamphlets in the occasional hours to be spared from his medical classes. And of course, to the Senior Curator, who patiently counselled and corrected through these, and our other, activities.

The projected catalogue of manuscripts of book or article length, which is to constitute the major result of the APS grant, has also been advanced during the year, although more slowly. Mrs. Marlyn Kemper, who volunteers several hours of service in the Department each week, has contributed materially to the manuscript project. She has also recorded memoirs of Fellows published to date in these *Transactions,* which now appear by subject in the card catalogue.

The Department of Anatomy of the University of Pennsylvania, through the Librarian of the Medical School, Mr. Jerome Rauch, this past summer offered to us the contents of the Piersol Anatomy Library, for acquisition or sale, under certain limitations. With the active assistance of Dr. Charles E. Rosenberg, Ph.D., of the University's Department of History, the Associate Curator selected about 25 cartons of books, and a collection of over 2500 catalogued pamphlets and reprints on anatomy. Work has only just begun on this acquisition, but already it has contributed several important first editions to our shelves.

Similarly, early this summer, the University Archives, through Mr. James Dallett, kindly presented to us a large quantity of bound records and archives of the Philadelphia Orthopaedic Hospital and Infirmary for Nervous Diseases, now defunct, to complement our previous collection of registers and case histories—patients of Osler and Weir Mitchell among them—from that institution.

The Associate Curator attended the annual meeting of the American Association for the History of Medicine in May in Colorado Springs. As usual, it was a profitable and interesting experience. Other activities, chiefly extra-curricular, have included: 1., preparation of questionnaires and procedures for a prospective directory of libraries in the history of the health sciences, under the direction of Mrs. William M. Zinn of San Francisco, as Chairman of the History of Medicine Group of the Medical Library Association; 2., preparation, with Mrs. Mar-

lyn Kemper, and revision, of an index to F. P. Henry's *Standard History of the Medical Profession of Philadelphia,* 1897, which is still the principal general authority for two centuries of local medical history, although its use is severely curtailed by its lack of index; and 3., continuation of a Topsy-like project to index obituaries of 19th-century American physicians from medical journals. Into this slow but inexorable whirlpool have been drawn various members of the Associate Curator's family, a number of professional acquaintances, and several rooms in her house, with the result that the collection of "processed" names now numbers about 5,000, and "unprocessed" about 2,000. Though the end is not in sight, it already constitutes by far the most convenient index available to 19th-Century American medical biography, especially of figures hitherto somewhat obscure. A useful by-product has emerged in the shape of a collection of lists of 19th-Century American medical graduates, now about half-complete, which occupies, in photocopy, seven large notebooks. The University of Pennsylvania Archives has graciously allowed us to have microfilmed its unpublished registers of medical matriculants, and other libraries have supplied published materials which we lack. Biographical search is one of the most time-consuming activities of the historical librarian; we hope eventually to produce a working tool which will be of general assistance in medical biographical research.

Activities in portrait-indexing and book-preservation continue to occupy much staff time. Reference work, both by telephone and letter, has increased during the year.

We are pleased indeed to record the transfer of Miss Jean Carr to our staff as Assistant to the Cataloguer.

Lisabeth M. Holloway
Associate Curator and
Cataloguer of Historical Materials

Mid-Eastern Regional Medical Library Program

July 1970–June 1971

MERML's (The Mid-Eastern Regional Medical Library's) third Regional year was another year of growth and change. There were four outstanding conditioning elements that influenced the year:

1. *Changes at the National Library of Medicine (NLM)*
   a. *Funding mechanisms.* The change from grant to contract funding eliminated some Regional activities such as the Serial List project. Contract funding will enable NLM to obtain better control and accountability from the RML's (Regional Medical Libraries)
   b. *Organization.* The change in NLM personnel responsible for the RML program brought about a reassessment of old policies and formation of new policies, resulting in an apparent change in emphasis, direction, and priorities for the program. Complete definition of the new policies has not yet been fully achieved.
2. *Growth of Regional activities*
   The Regional document delivery, reference, bibliographic, consultation, and training services have shown outstanding growth and utilization by the biomedical community throughout FY71, indicating that they all fill a real need.
3. *Need for "Regional Outlook" by Advisory Committee*
   The function of Advisory Committee members is to advise the RML management on network goals and planning, not merely to represent the interests of their own institutions. A genuine concern for the optimal development of the Region is essential to the optimal functioning of the committee. Attitudes in evidence have often been those of parochial concern for the interests of the existing, strong, privileged institutions represented by committee members; a preoccupation with individual institutional wants (self-defined needs) has often overshadowed any sense of responsibility for the Region as a whole.
4. *Financial difficulties of parent institution*
   The College incurred a substantial deficit during FY71. The College Library has been viewed for many years as a quasi-public library. Resources are limited, wants are unlimited. Fair prices, determined by the costs of production, seem to be the only equitable

way to mediate between these two irreconcilables. Information is a commodity which must be paid for, if not through taxes, then by service charges.

Regional Activities

Program Analysis

The interlibrary loan traffic survey of 1969, only recently analyzed, can shed some light on the nature of a centralized region and can afford us some perspective on the subregionalization question.

Region III Biomedical Lending, FY69

Lending institution	*% of total*
MERML (Coll. of Phys. Phila.)	67
Univ. of Pittsburgh	9
Thomas Jefferson University	2.5
Hershey Medical Center	2.5
Penna. Dept. of Health & Public Welfare	1.4
Inst. of Penna. Hospital	1.3
Phila. Coll. Pharm. & Science	1.3
Hahnemann Medical College	1.1
National Library of Medicine	1.0
Western Psychiatric Inst.	1.0
Eastern Pa. Psychiatric Inst.	0.8
U. of Penna. Dental Medicine	0.7
Temple U. Health Sciences Center	0.6
U. of Penna. School of Medicine	0.5
Medical College of Penna.	0.4
all others combined	8.9
	100.0

MERML's unit cost for interlibrary loans and photocopies is low, due to efficient operation and large volume. To subregionalize is to set up less efficient, low volume-producing units with higher unit costs. The good of the Region must be considered, as well as the total cost to the taxpayers, when resolutions about subregionalization are assessed.

Discussions of subregionalization have produced much heat and little light because the concept has not been clearly defined. Attempts to transplant operations indigenous to other regions with totally different conditions are likely to produce unfortunate results.

A two-month work sampling study using Random Alarm Mechanisms was done on administrative personnel resulting in a reduction of the percentage of the time of two individuals which could be charged to the Regional budget.

Statistical reporting continues to be done by a cost-effective semi-automated method using cluster sampling.

Document Delivery

Document delivery volume for FY71 was 41,649 fills, compared to 38,777 fills for FY70 (excluding walk-ins). Regional Photocopy attained an all-time high during March 1971 with 3598 articles copied during that month.

Filling time: 96% of filled requests were filled either on the day received or the following day. *Fill rate:* 84% of accepted requests were filled by MERML (walk-ins excluded). The rejection rate remained at about 2% of received requests. MERML refers most of its nonfills (16% of accepts) within the Region (7.3%) and only 3.6% to NLM, while 4.8% of accepts are returned to requester, often with a suggested source. *Clearing time:* 66% of nonfills were cleared either on the day of receipt or the following day. This is below our usual standard, but there were prolonged mechanical difficulties with the TWX during the third quarter.

Quotas based on the number of health science personnel in each institution continued effectively to limit consumption while equitably allocating service.

Reference-MEDLARS

MERML's user needs survey of 1969 demonstrated that the health science libraries of Region III place an extremely high value on comprehensive reference service. Early in the Regional program it was evident that to offer all desirable services would be financially impossible. In an effort to learn user preference, we surveyed our entire list of user institutions. Eleven

choices were offered, with brief descriptions, and the relative costs of each service. Although comprehensive reference service was by far the most costly of the 11, costing ⅓ of the total sum the users were given to "spend," the nearly 200 responders ranked reference service second only to document delivery.

What reference service is offered by the resource libraries in Region III is often limited to their own clientele. While Univ. of Pittsburgh offers MEDLARS service to users outside the university, the Pittsburgh center accounts for about 10% of the MEDLARS searches from Region III.

MERML began reference service in July 1968 and MEDLARS service in August 1969. Ever increasing use of these services clearly illustrates the need for them.

	FY69	FY70	FY71
Quick reference questions (Circ. Dept.)	N.Av.	10,621	10,973
Bibliographies prepared	26	41	55
Reference questions answered	47	1,366	2,366
MEDLARS searches formulated	0	537	614

Types of users, Reference Dept:
85% medical
10% osteopathy, dentistry, nursing, pharmacy, veterinary medicine
5% laymen

Types of users, MEDLARS section:

67%	medicine	3%	teaching
5	dentistry	44	research
6	pharmacy	16	patient care
8	allied health profs.	11	publication
5	biological sciences	4	student
2	veterinary & nursing	23	other & misc.

Our reference department does simple fact questions, simple fact summaries, bibliographies, short subjects searches, author & biographical searches, locations on books and audiovisuals, verifications; it also refers out-of-scope reference questions to other information centers.

Verification is not merely a part of document delivery service, but is a distinct service to authors and researchers. Much of our user demand covers material before 1964, outside the scope of *Index Medicus*, or involving single MeSH terms.

State-of-the-art reviews, abstracting, translating, scanning, and editing are done by the College's Medical Documentation Service on a fee basis.

During FY71 the recall ratio for our MEDLARS section was 85%. This is somewhat above average for the system (58%) as determined by Lancaster (Am. Doc. 20 (2) 119–142, 1969). MERML's precision ratio is 54% compared to 50% for the system as a whole.

No MEDLARS orientations were given during FY71. For most of the year, our MEDLARS staff consisted of one half-time temporary analyst.

Beginning in March, several AIM/TWX searches were done for exploratory and instructional purposes. A few were done in lieu of MEDLARS searches for users who needed the citations immediately.

The presence of MEDLARS service at MERML did not obviate the manual reference service, nor will AIM/TWX or its successor, MEDLINE. The need is not for on-line citation service *only*, or for manual reference *only*, but for an integrated, evaluative reference-bibliographic system characterized by continuous, reciprocal feedback between the manual and mechanized components.

Training and Consultation

Among the objectives of the Medical Library Assistances Act is the establishment, improvement, and expansion of health science libraries. This includes guiding their early growth, joining them to the RMLs & other established libraries, teaching them to help themselves, and starting them on the

road to independent existence & service to their clientele.

One activity that helps accomplish this is the training and consultation service for the basic unit, the hospital library.

MERML is an efficient producer of interlibrary loans and photocopies. Regardless of how good a product is, or how efficiently it is produced, if the essential marketing function is neglected, there will be low sales and low utilization. In the RML program, consultation and training is analogous to the marketing process. The customer must be made aware of the product's existence and availability.

In Region III there are approximately 411 hospitals of all types and sizes. According to our preliminary survey, only 226 (55%) of these have libraries of any description, and only 164 (40%) are staffed at all. Of the 226 "libraries," 62 have less than 25 current journals.

In one area of Region III, the Greater Delaware Valley RMP area, MEMRL initiated a hospital library survey in 1970 which elicited responses from 104 hospitals. Of these, 97 had a library, 19 were staffed full-time, and 94 were staffed at least part time. Fifty one of these libraries had less than 30 current journals, and only 55 received either *Index Medicus* or *Abridged Index Medicus*. Only 45 (43%) offered interlibrary loan service to their clients.

MERML's training and consultation program is a going concern, not a vague and hopeful dream. It responds to a genuine, demonstrable need. On the following pages are listed the institutions who have sent representatives to our out-of-town workshops and who have received consultation visits during FY71; most have indicated that they found these activities valuable.

Most of the institutions visited were those whose profiles on the MERML-GDVRMP survey showed need for improvement. Individual needs of the institutions were diagnosed, with appropriate recommendations for action to follow. Very few of those institutions knew about or were using MERML services.

Institutions Represented at MERML Out-of-Town Workships FY71

Erie, Pa. Sept. 23, 1970

Hamot Hospital, Erie
Shriners Hosp. for Crippled Children
Titusville Hosp.
American Sterilizer Corp., Erie
Edinboro State College
Union City Memorial Hosp.
Spencer Hosp., Meadville
Warren General Hosp.
Gannon College, Erie
St. Vincent's Hosp., Erie
Doctors Osteopathic Hosp., Erie

Altoona, Pa. Oct. 14, 1970

VA Hospital, Altoona
Monsour Hosp. & Clinic, Jeannette
Hollidaysburg State Hosp.
Nason Hosp., Roaring Spring, Pa.
Altoona Hosp.
Tyrone Hosp.
Lee Hosp., Johnstown
Citizens General Hosp., New Kensington
Westmoreland Hosp., Greensburg

Coatesville, Pa. Dec. 3, 1970

VA Hosp., Coatesville
Chester County Hosp., West Chester
Devereux Fdn., Devon
Elizabethtown College
Lancaster General Hosp.
Lancaster Osteopathic Hosp.
Muhlenberg Med. Ctr., Bethlehem
State Library, Harrisburg
Reading Hosp.
VA Hospital, Lebanon
VA Hospital, Phila.
Cherry Hill Med. Ctr., Cherry Hill, N.J.
Salem County Memorial Hosp., Salem, N.J.

Wilmington, Del. March 31, 1971

VA Hospital, Wilmington
Beebe Hosp., Lewes, Del.
Emily F. Bissell Hosp., Wilmington
Delaware Academy of Medicine, Wilmington
Hosp. for Mentally Retarded, Georgetown, Del.
St. Francis Hosp., Wilmington
Smyrna Home & Hosp., Smyrna, Del.

Eagleville Hosp. & Rehab. Ctr., Eagleville, Pa.
Lankenau Hosp., Phila.
Mercy Douglas Hosp., Phila.
Nazareth Hosp., Phila.
Pottstown Med. Ctr., Pottstown, Pa.
St. Joseph's Hosp., Reading, Pa.
Tri-County Hosp., Springfield, Pa.

Atlantic City, N.J. April 20, 1971

Atlantic City Hosp.
Burlington County Hosp., Mt. Holly, N.J.
Children's Seashore House, Atlantic City
Deborah Hosp., Browns Mills, N.J.
Jersey Shore Med. Ctr., Neptune, N.J.
N.J. State Hosp., Ancora
Newcomb Hosp., Vineland
Rancocas Valley Hosp., Willingboro
Shore Memorial Hosp., Somers Point
Burdette Tomlin Hosp., Cape May Court House

Wilkes-Barre, Pa. April 29, 1971

VA Hospital, Wilkes-Barre
Berwick Hosp.
Bloomsburg Hosp.
Community Med. Ctr., Scranton
Mercy Hosp., Scranton
Muhlenberg Med. Ctr., Bethlehem
Nanticoke State Gen. Hosp.
Nesbitt Hosp., Kingston
Pittston Hosp.
Moses Taylor Hosp., Scranton
Wayne County Mem. Hosp., Honesdale
Wilkes-Barre General Hosp.
Wilkes-Barre Sch. of Nursing

Institutions Receiving MEMRL Consultation Visits During FY71

Albert Einstein Medical Center, Daroff Division, Phila.
Montgomery-Norristown Hospital, Norristown, Pa.
Allentown Hospital, Allentown, Pa.
Cooper Hospital, Camden, N.J.
Wernersville Hospital, Wernersville, Pa.
Wilmington Medical Center, Wilmington, Del.
Mercy-Douglas Hospital, Phila.
Eastern State School & Hospital, Trevose, Pa.
Penna. College of Podiatry, Phila.
Cherry Hill Hospital, Cherry Hill, N.J.
Muhlenberg Medical Center, Bethlehem, Pa.
Methodist Hospital, Phila.
Chester County Hospital, West Chester, Pa.
Paoli Memorial Hospital, Paoli, Pa.
Taylor Hospital, Ridley Park, Pa.
Haverford General Hospital, Havertown, Pa.
Community Memorial Hospital, West Grove, Pa.
Coatesville Hospital School of Nursing, Coatesville, Pa.
Phoenixville Hospital, Phoenixville, Pa.
Newcomb Hospital, Vineland, N.J.
Millville Hospital, Millville, N.J.
Elmer Community Hospital, Elmer, N.J.
Kent General Hospital, Dover, Del.
Milford Hospital, Milford, Del.
Nanticoke Memorial Hospital, Seaford, Del.
Children's Seashore House, Atlantic City, N.J.
Shore Memorial Hospital, Somers Point, N.J.
Burdette Tomlin-Memorial Hospital, Cape May Court House, N.J.
Palmerton Hospital, Palmerton, Pa.
Lehighton Hospital, Lehighton, Pa.
General Hospital of Monroe County, East Stroudsberg, Pa.
Pittston Hospital, Pittston, Pa.
Nanticoke State General Hospital, Nanticoke, Pa.
Berwick Hospital, Berwick, Pa.
Bloomsburg Hospital, Bloomsburg, Pa.
Taylor Hospital, Taylor, Pa.
Community Medical Center School of Nursing, Scranton, Pa.
Moses Taylor Hospital, Scranton, Pa.
St. Joseph's Children's & Maternity Hospital, Scranton, Pa.
Wyoming Valley Hospital, Wilkes-Barre, Pa.
Community Medical Center, Scranton, Pa.
Mid-Valley Hospital, Peckville, Pa.
Carbondale General Hospital, Carbondale, Pa.
Wayne County Memorial Hospital, Honesdale, Pa.
Farview State Hospital, Waymart, Pa.
West Jersey Hospital, Southern Division, Berlin, N.J.
New Jersey State Hospital at Ancora, Ancora, N.J.
Wm. B. Kessler Memorial Hospital, Hammonton, N.J.
Metropolitan Hospital, Phila.
Diagnostic & Rehabilitation Center, Phila.

The Core library and a slide-tape presentation on Region III information services were shown at the conventions of the Mid-Atlantic Health Congress and the Catholic Hospital Association, both in Atlantic City.

A considerable effort was made to enlist new members for the Medical Library Association and to encourage attendance at the New York convention of M.L.A. Many inquiries and preregistrations resulted.

Before 1968, the College Library service was concentrated around metropolitan

Philadelphia. When the College became a Regional Medical Library, it undertook to strengthen health science libraries throughout the Region. In this effort, the training and consultation activity played a leading part. The changes in outreach since 1967, the last full preregional year, show that MERML has indeed made progress, and that increased utilization of document delivery parallels increased training and consultation activity.

Number of institutions in Region III who borrowed at the rate of at least 10 items/year in:

	1967	1969	1970	First half of 1971
Metropolitan Philadelphia	87	87	115	111
Other Pennsylvania	13	45	62	58
Southern New Jersey	7	15	19	18
Delaware	6	6	11	11
Total	113	153	207	198
MERML workshops given	0	1	6	4
Field trips & consultation	0	6	25	41

However, much remains to be done. By the end of 1970, 54 percent of the hospitals on the AMA-MLA list of health science libraries in Region III had borrowed at least 10 items/year and 86 percent had requested borrowing quotas. However, when MERML's own mailing list (which also includes health science institutions having no libraries) is used as the base, only 27 percent of the hospitals borrowed at least 10 items/year and only 63 percent of the hospitals had requested borrowing quotas.

Publications

MERML News. The fall issue, devoted to the hospital library, contained much instructional material of interest to hospital libraries. The spring issue featured the Regional Reference Department and the many services it offers.

Serial list. This project was terminated, still incomplete, on June 30, 1971.

Hospital survey. Copies of the report of the MERML-GDVRMP hospital survey were distributed to all RMLs, the RMPs within Region III, and the executive subcommittee of the Advisory Committee.

Cost Study

A complete report on the methodology of MERML's interlibrary loan cost study appeared in the May–June issue of the *Journal of the American Society of Information Science.*

Staff

21.1 full time equivalents, including 6.4 professionals.

Advisory Committee

Meetings of the Advisory Committee were held at the College on Nov. 19, 1970 and Jan. 14, 1971. Chief subjects of discussion were 1., NLM evaluation of the first 4 RMLs, with emphasis on MERML's evaluation: 2., better geographical & occupational representation of the Region on the Advisory Committee; and 3., subregionalization.

The membership of the Advisory Committee, including new members appointed in 1971, is listed below:

John F. Huber, M.D., Temple Univ., Phila., *Chairman*
Catherine Brosky, Western Pennsylvania RMP, Pittsburgh
J. K. Clark, M.D., GDV/RMP, Phila.
J. A. Collins, Jr., M.D., Geisinger Medical Center, Danville, Pa.
Lucy Cooke, Hahnemann Medical College, Phila.
Ruth Diamond, Temple Univ. Medical School, Phila.
Dean Dimick, M.D., Allentown Hospital, Allentown, Pa.
Ida Draeger, Medical College of Pennsylvania, Phila.
Marion Fay, Ph.D., Phila.
Guy Garrison, Ph.D., Drexel University, Phila.
Sherman Garrison, M.D., Bridgeton, New Jersey
Helen Lake, Philadelphia General Hospital, Phila.
Lois Lehman, Hershey Medical Center, Hershey, Pa.

Robert Lentz, Thomas Jefferson University, Phila.
Elliott H. Morse, College of Physicians of Phila.
Marie Norton, Lankenau Hospital, Phila.
Jerome Rauch, Univ. of Penna. School of Medicine, Phila.
Carroll Reynolds, Ph.D., Falk Library, Univ. of Pittsburgh School of Medicine
Dean Roberts, M.D., Hahnemann Medical College, Phila., GDV/RMP, Phila.
Leon Ross, M.D., Veterans Admin. Hospital, Wilkes-Barre, Pa.
Philip Schwartz, M.D., Warren State Hospital, Warren, Pa.
William Snagg, M.D., Cooper Hospital, Camden, New Jersey
Richard Snyder, Drexel University, Phila.
Eugene Syrovatka, LL.D., Delaware Academy of Medicine, Wilmington, Del.
David Taylor, Susquehanna Valley RMP, Camp Hill, Pa.
Ronald Tess, Health & Welfare Assoc. of Allegheny County, Pittsburgh, Pa.
Francis C. Wood, M.D., Hospital of Univ. of Penna., Phila.

Ex officio:

George I. Blumstein, M.D., President, The College of Physicians of Phila.
Charles E. Ingersoll, Executive Director, The College of Physicians of Phila.
Carol Spencer, Director of Regional Services, The College of Physicians, Phila.

Appointments are for one year, and are made by the President of the College. The Advisory Committee is advisory, not a policy-making board. Since most members have served for much longer than one year, and since the group is quite large, an executive subcommittee of 5 members was appointed by the chairman to advise the RML management. Appointments were: Brosky, Clark, S. Garrison, Lehman, Lentz.

The Regional Planning Council, a group even larger than the Advisory Committee, is invited to attend meetings to express opinions from a wider segment of the biomedical community. They do not vote on Committee resolutions.

Carol C. Spencer, *Director*
Mid-Eastern Regional Medical Library Service

S. Weir Mitchell Associates and Resource Grant Activity

S. Weir Mitchell Associates increased by four during 1971, bringing the total number of endowments to 163. In April an exhibit in the front lobby was designed to draw attention to the program. The Resolution of Council establishing the group, examples of various types of memorial bookplates, and lists of journals sponsored and still seeking sponsors, together with documents and pictures relating to S. Weir Mitchell were displayed. Unfortunately no direct response was elicited, and no new endowments resulted from the effort.

Visitors. Thirteen group tours of the library were conducted. Among the groups were two from Drexel's library school, one from Drexel's undergraduate program in biological sciences, several from area nursing schools, high school biology classes, and training programs in medical technology.

Several interesting individual visitors from overseas paid us calls, among them graduate students from Brazil and France, an English medical librarian, and the director of libraries from the medical school at Airlangga University, Surabaya, Indonesia.

Fellows' use. As Fellows librarian, Mrs. Davis responded to seven telephone reference calls, provided two bibliographies, answered nine miscellaneous requests, ranging from checking a list of references for a text to arranging for receipt of gifts. Although 13,280 coupons for photocopy were distributed to Fellows, only 284 were redeemed. This represents approximately $568.00 of free service directly to Fellows. If *all* coupons had been redeemed, the estimated dollar value would have been $26,560. Maybe it's just as well that most Fellows use their hospital libraries first, and thus may be receiving free photocopy through the Regional Program instead of by direct application.

Also, many Fellows use the reference staff and telephone reference service directly

without the intervention of Mrs. Davis, and this is fine. Mrs. Davis is primarily there as an expeditor when the Fellow has struck some snag in his quest for service.

Hence, this brief report on the activities of the Fellows' librarian represents only a fraction of the services actually used by the Fellows.

The *Resource Grant* this year allowed some 811 volumes to be bound, over and above our normal binding schedule. Also two hundred pam boxes were used in stacks to compact and protect unbound issues of journals. A major shift is underway, designed to provide room in the old stacks for three or four years' growth. All 19th-Century journals are being transferred to 1st floor (both old and new stacks); journals from 1901–1950 are being shelved in new stacks, floors 2–5; and journals from 1951 forward are being shelved in old stacks floors 2–5. In order to accomplish this, the first floor new stacks had to be completely cleared, with some material going to the 6th floor, and some being disposed of by sale or exchange or sheer gift. This disposal problem is slow and arduous. Response to circulars and lists is slow, unbelievably slow, and yet one cannot afford to hold things beyond a certain time limit else the whole project bogs down.

Unfortunately Resource Grant funds were exhausted on Dec. 31, 1971, and the project is temporarily stalled for lack of a full-time worker. James Smith, who served about a year and a half as stacks manager, was released when the grant ran out. A new grant request has been submitted to NLM and a site visit has been made, but what the outcome will be, probably will not be known before May or June.

In the meantime, the shift of the 19th-Century material has proceeded backwards (that's a contradiction of pre-fixes!) from Z to Med. Prog. and will be continued with such effort from regular staff members as can be extracted from their schedules.

Two shipments of journals were sent through Medico, a branch of CARE, to medical schools in Afghanistan and Indonesia, and major shipments were sent to the College of Medicine and Dentistry of New Jersey, the State University of New York at Stoney Brook, Long Island, and the University of Southern Florida. The Royal Society of Medicine in London also was able to fill some of its needs from our duplicate collections of journal unbounds.

Excluding sales of historical duplicates, the Library realized almost $2,500 from sales of duplicates—both books and unbound journals—to individuals, dealers, and newly founded libraries. In addition some twenty-nine medical libraries (mostly hospital) in our region were supplied with missing issues for their binding needs.

The Assistant to the Librarian served on three accreditation visits to American Library Association accredited library schools on behalf of the Medical Library Association accreditation program: to the Universities of Pittsburgh and Toronto and to Catholic University of America. She also serves on the Advisory Committee for the Library Technicians' program at the Community College of Philadelphia. She is serving as Chairman of the Committee on Curriculum for the Medical Library Association, and also on the Ad Hoc Committee seeking a grant for continuing education programs.

The temporary freeze on jobs has resulted in the reduction of the paging staff from six to five, but the elimination of evening and Saturday service compensates for this reduction in the work force. The two part-time students assistants have also been eliminated. The paging staff and the Xerox department have performed efficiently, and their efforts to provide fast, accurate service to patrons has a lot to do with the continued good repute of the Library. The paging staff pam-bound 876 volumes of journals.

As another year opens in the long history

of the library, problems of space remain a prime consideration as prospects for continued expansion of service remain challenging.

Beatrice F. Davis
Assistant to the Librarian

Benefactors. The Library acknowledges its gratitude to the following institutions which have shared the operational costs of the College Library this year:

NON-PROFIT INSTITUTIONS

Alfred I. du Pont Institute
Bryn Mawr Hospital Medical Staff
Children's Hospital of Philadelphia
Delaware Academy of Medicine
Franklin Institute
Germantown Hospital & Dispensary
Hahnemann Medical College
Institute for Cancer Research
Institute for Medical Research
Lankenau Hospital
Medical College of Pennsylvania
Pennsylvania College of Podiatric Medicine
Pennsylvania Hospital "The Institute"
Philadelphia General Hospital
Temple University
Thomas Jefferson University
University of Pennsylvania Medical Libraries

CORPORATE INSTITUTIONS

American Cyanamid Company (Lederle Laboratories)
Armbruster, Moore & Mac Kerell
N. W. Ayer & Company
James E. Beasley
Bell Telephone Company
Bernstein, Berstein, Harrison & Kessler
Bleakly, Stockwell, Zink & Mc Geary
Bristol Laboratories
Brown, Conery & Kulp
Campbell Institute for Food Research
Carrol Dunham Smith Pharmaceutical Company
Carter-Wallace, Inc.
Ciba-Geigy Corporation
Cohen, Shapiro, Polisher, Shiekman & Cohen
Cooper Laboratories
Corning Glass Works
Council for Tobacco Research
F. A. Davis Company
Dechert, Price & Rhoads
Dow Chemical Company
Duane, Morris & Hecksher
E. I. du Pont de Nemours (Haskell Laboratories)
E. I. du Pont de Nemours (Lavoisier Laboratories)
E. I. du Pont de Nemours (Stine Laboratories)
Extracorporeal Medical Specialties, Inc.
FMC Corporation (American Viscose)
Frank Franham
Feldman & Feldman
Freedman, Borowsky & Lorry
General Electric Company
General Technical Services
Evelyn Goldstein
Gross, Sklar & Lorry
Harleco
Hershey Foods Corporation
Hoechst Pharmaceutical Company
Hoffman-La Roche, Inc.
ICI America Inc. (formerly Atlas Chemical)
3 I's Information Interscience, Inc.
Institute for Scientific Information
International Pharmaceutical Corporation
Johnson & Johnson Company
Kilpatrick Associates, Inc.
Kisselman, Deighan, Montano, King & Summers
Kremer, Krimsky & Luterman
La Brum & Doak
La Wall & Harisson
Lea Incorporated
Lewis & Gilman
Arthur D. Little, Inc.
Litvin & Rutter
Mac Andrews & Forbes
Manchel, Lundy & Lessin
McNeil Laboratories
Merck & Company
Merck Frosst Laboratories
Herbert Monheit
Norwich Pharmacal Company
O.E.M. Medical, Inc.
Ortho Research Foundation
Pechner, Sacks, Cantor & Dorfman
Pennwalt Corporation
Pepper, Hamilton & Scheetz
Perskie & Perskie
Chas. Pfizer & Company
Radio Corporation of America
Raynes & McCarty
R. J. Reynolds Tobacco Company
Richter, Syken, Ross, Binder & O'Neill
Rohm & Haas Company
William H. Rorer, Inc.
Sandoz-Wander, Inc.
Schering Corporation
Schnader, Harrison, Segal & Lewis
Scott Paper Company
Shein, Mele & Brookman
Morris Shuster
Chas. B. Slack, Inc.
Smith Kline & French Laboratories

E. R. Squibb Institute of Research
Paula Stone
T.E.X. Associates
Travenol Laboratories
U.S.V. Corporation
Warner-Lambert Company
White & Williams
Worthington Biochemical Corporation
Wyeth Laboratories
Zenith Laboratories

Statistical Summary Inventory

	1971	*1970*
Accessioned items:[1]		
Incunabula[2]	421	421
Manuscripts and typescripts	1,352	1,346
General	259,451	254,307
Accessioned pamphlets	10,845	10,313
	272,069[3]	266,387[3]
Unaccessioned items[1]		
Reports	28,822	28,822
Theses	63,910	63,370
Pamphlets, reprints and microfiche	228,721	228,704
	321,453	320,896

Accessioned acquisitions:

1971: 5682 (3412 by purchase; 1897 by gift; 373 by exchange) (books, 2093; periodical volumes, 3057; pamphlets, 532)

1970: 6347 (3217, by purchase, 2709 by gift; 421 by exchange) (books, 2986; periodical volumes, 2614; pamphlets, 747)

Unaccessioned acquisitions:

1971: 557 items (theses, 540, miscellaneous, 17)

1970: 677 items (theses, 515; microfiche, 14; miscellaneous, 148)

Currently Received Serials

	Subscription	*Gift*	*Exchange*	*Total*
U.S.A.	621	393	54	1068
Western Europe	853	64	133	1050
Eastern Europe	146	40	63	249
United Kingdom and Eire	185	29	24	238
Asia (including Japan)	106	39	85	230
Latin America and West Indies	35	54	70	159
Canada	20	16	8	44
Pacific (Australasia)	9	8	6	23
Africa	2	6	12	20
Grand Total 1971 (Dec. 31)	1977	649	455	3081[4]
Grand Total 1970 (Dec. 31)	2068	708	436	3212

[1] Accessioned items in this library comprise the total number of bound volumes and such unbound pamphlets as have been cataloged as separate bibliographical units regardless of their size.

There remain many thousands of unaccessioned pamphlets awaiting accessioning and cataloging. A true quantitative and qualitative picture of the library's holdings cannot be presented until this wealth of neglected material has been processed and duly registered in our 'accessioned' count.

[2] The Library owns 423 incunabula, but there are two instances of two bound together, reducing the number of accessioned volumes.

[3] Included in these figures are the following collections which are on permanent deposit in the Library: Gross Library, 3,976 accessioned items: Parry Library of the Obstetrical Society of Philadelphia, 217; Mütter Museum, 200. Mütter Museum books may not be removed from the College building.

[4] Titles are only included in this count if issues were received during 1970 or 1971.

New Titles: A total of 56 new serial titles was addded from November 1, 1970 to December 1971. (118: 1970)
23637 separate issues were received, checked in and shelved. (24,382: 1970)
Binding: During 1971, 1065 volumes were commercially bound. (1970: 1319)[5]
746 volumes were pamphlet bound in the library. (1970: 909)

Readers' Use of the Library

Library hours: During the year the Library was open from 9:00 A.M. to 9:30 P.M. on Mondays and Wednesdays, from 9:00 A.M. to 5:00 P.M. on other weekdays. From June 1st until the first Monday after Labor Day, the Library was open from 9:00 A.M. to 9:00 P.M. on Tuesdays and from 9:00 A.M. to 5:00 P.M. on other weekdays, except Saturdays when it was closed. September 13 to December 31, Library hours were changed to 9:00 A.M. to 5:00 P.M. Monday through Friday. The following legal holidays were observed: Thanksgiving, Christmas, New Year's, Memorial, Independence, and Labor Days.

	Reading Room	*Periodicals Room*	*Totals*
Visitors			
1971	6,062	2,325	8,387
1970	6,910	3,490	10,400
	Intra-mural[6]	*Extra-mural*	*Totals*
Circulation			
1971	21,936	17,570	39,506
1970	22,137	25,354	47,491
	Books	*Journals*	*Totals*
1971	9,754	29,752[7]	39,506
1970	9,536	37,955[8]	47,491

Interlibrary loans: The Library sent 44,365 (1970: 48,119) volumes on interlibrary loan. The 1971 figures include 34,272 (1970: 30,336) articles photocopied with Regional Grant support but they do not include the photoduplications noted immediately below.
Photoduplication: 210,204 pages were photocopied on request (1970: 163,760). Users of this service reimburse the College Library for copying and bookkeeping costs.

Donations

The donors for the past year number 65 (1970: 69). The library is indebted for large gifts of books, pamphlets and unbound periodicals to the following donors: Dr. Walter R. Eberlain; Stewart E. First, M.D.; the Free Library of Philadelphia; Mr. S. Sim Kessler; Mrs. J. Franklin Menges; Mrs. Martha Ross; Mrs. Lois Rothstein; Mrs. Charles Rupp; Smith Kline & French Laboratories; Paul Steiner, M.D.; Katharine R. Sturgis, M.D.; Library of the University of Pennsylvania School of Medicine; and Wyeth Laboratories.

Various publishing houses, among the group of corporate donors, have presented volumes as follows: F. A. Davis Company, 49; Lea & Febiger, 14; J. B. Lippincott Company, 45; W. B. Saunders, 109.

Other individual donors were as follows: Drs. W. Harry Archer, Domingo M. Aviado, George I. Blumstein, Claude P. Brown, Thomas Butterworth, Mrs. David A. Cooper, Drs. George W. Corner, Frank A. Elliott, Miss Patricia Fox, Drs. Michael A. Ganz, R. John Gould, Mr. Jack D. Key, Dr. John W. Lachman, Dr. and Mrs. N. Blair LeRoy, Benjamin Malzberg, Drs. Stuart Mudd, Donald M. Pillsbury, Samuel X Radbill, Richard H. Roberts, Mr. Frederic Rosengarten, Drs. Harold G. Scheie, Walter B. Shelley, Paul E. Steiner, Julian A. Sterling and F. William Sunderman.

Theses and dissertations in the number of 579 have been received on exchange from the following European schools of medicine: Universities of Basel, Bern, Erlangen, Geneva, Karolinska Institut, Lausanne, Leiden, Louvain, and Utrecht.

The *Transactions & Studies* was sent, either in exchange or as a gift to 445 organizations. (1970: 575)

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[5] In addition 811 volumes were bound as part of the Resource Grant Program.

[6] The number of volumes "consulted in the library" includes only those supplied on demand. Readers have access to the bound volumes of periodicals and reference works kept on the shelves in the Reading Room. The Fellows, and occasionally others, by special permission, have access to the book stacks. There are, therefore, many volumes consulted of which no accurate record can be kept.

Medical Documentation Service

Publication activity. This year was marked by some drastic changes in M.D.S. publications. New assignments have been accepted, existing ones have been continued and some old ones have been discontinued. *The Drug Information Association Quarterly* has begun to use M.D.S. photocomposition services and editorial assistance. The publication of *Cystic Fibrosis* continues with article selection, abstracting, and photocomposition provided by the Medical Documentation Service.

A decision by the National Foundation (March of Dimes) to channel its funds in different directions resulted in the decision to discontinue the publication of *Birth Defects.* This rather sudden cessation of a long standing relationship disrupted departmental organization and adversely affected anticipated income estimates. The National Foundation indicated its willingness for *Birth Defects* to be continued as a M.D.S. publication. A questionnaire to previous recipients of the publication demonstrated considerable interest but the Library Committee did not believe it was enough to assure financial viability at a subscription rate which would be necessary to cover costs and overhead. The existence of other abstracting journals covering some aspects of genetics and birth defects was also a deciding consideration.

Limitations in publication support also led to discontinuation of funding of *Influenza* by the National Institute of Allergy and Infectious Diseases. The grant renewal application for this publication was fully approved but funds were not available. M.D.S. has received federal permission to find other sources of funding or to try to establish the publication on a self-supporting basis. To determine the amount of interest among potential subscribers, an insert will be placed in the last federally supported issue, volume 10, no. 4.

The "Proceedings of the Seventh Annual National Information Retrieval Colloquium" held on May 7–8, 1970 was published by the Medical Documentation Service. The Director of M.D.S. served both as Colloquium Chairman and Editor of the Proceedings. The text has been well received and is available for $15.00 through M.D.S.

Miss Berton continued as Editor of the *Newsletter of the Delaware Valley Chapter of the American Society for Information Science* and the *Bulletin of the Special Libraries Council of Philadelphia and Vicinity* which were published by M.D.S. The *Newsletter* was cited for an award by the national A.S.I.S.

S.D.I.: Selective dissemination of information. This service which was previously performed manually has been converted to a computerized process which permits random input of citations with automated sorting and processing. Clients with their own computerized systems have requested special programming of M.D.S. reports to make them compatible with their own data systems, thus avoiding duplication of effort. S.D.I. activity has generated a great quantity of photoduplication work for the Library.

The storage and retrieval of client citations by means of computer delineation of special interest profiles led to a presentation to the Pharmaceutical Manufacturer's Association last March by Mr. Robert V. Cuddihy, Head of Information Services of the Sandoz Pharmaceutical Company. His paper presented comparative data on mass computer search strategy and on M.D.S. services. The comparison was favorable to the Medical Documentation Service. Many inquiries and the addition of several new clients appear to have resulted from this unsolicited testimonial.

Unlike previous meetings, this year's sessions of the P.M.A. will be open to "ven-

[7] This figure includes unbound current journal issues circulated from the Periodicals Room.

[8] This figure includes 6,976 unbound current journal issues circulated from the Periodicals Room.

dors" and the Director of M.D.S. has been invited to present a follow-up to Mr. Cuddihy's paper.

Literature review. Food and Drug Administration investigation of certain pharmaceutical products led to two assignments this year to undertake extensive literature surveys to extract masses of data and to summarize the literature on specific products. These projects, which continued for approximately four to six months, will continue into 1972 on an expanded basis.

Abstracting services. Previous cooperative relations with BIOSIS continued with the negotiation of a contract to provide 10,000 abstracts of foreign language articles each year for *Biological Abstracts*. Hopefully this assignment will continue for many more years.

Service to the Fellows. The previous M.D.S. policy of providing limited free service to Fellows was formalized in 1971 by a coupon plan instituted by President George I. Blumstein. Fellows received coupons which could be submitted with requests for bibliographic services entitling them to three free hours of search time. A discount is granted for work authorized above the quota. Free service to Fellows amounted to sixty and one half hours during the year and might have been more if the coupons had been distributed before the second quarter of the year.

The costs of this free service are not funded from any budget source. However, the Medical Documentation Service welcomes the opportunity to introduce its facilities to the Fellows in this manner and hopes that a greater awareness of the availability of this service will lead to greater use in the coming years.

Price scales. The persistent excess of operating costs over income led inevitably this year to a revision of M.D.S. charges. With cost analysis assistance from the Comptroller of the College, a new rate scale was developed which intends to recover all of the operating costs of the Department. Administrative economies reduced the amount of increase which were necessary to balance costs and income. The new price structure remains competitive with similar services and the costs of in-house operations.

Personnel. Miss Jean Carr, Executive Secretary, was released to permit her to accept the position of Assistant to the Cataloger in the Library's Historical Collections Department.

Mr. Fritz Danga combines his training in microbiology and bacteriology with linguistic talents in Russian, German, French and Scandinavian languages to scan, translate and abstract foreign literature.

Miss Linda Sue Frantz, Supervisor of the S.D.I. Services, both scans and oversees the scanning by others to guarantee retrieval of articles in clients' fields of interest. The painstaking care required for this responsibility is an essential operation of M.D.S. activity.

Mrs. Geraldine James joined the staff after the end of the year to provide reference service. Her previous experience as a reference librarian brings strength to the department.

Dr. Alfred Lisi remains on a furlough status pending resumption of the publication of *Influenza*.

Miss Anne McGinnis resigned to accept a more responsible position closer to her home.

Dr. Erich Meitzner brings his linguistic skills to his participation in the BIOSIS project and data extraction.

Mrs. K. Bernice Odom lends exceptional bibliographic skills to her service as editor for the S.D.I. Service and in the provision of retrospective literature searches.

Dr. Harriett Rockwell combines her training in biochemistry, her linguistic competence in German and Romance languages with experience as a literature scientist to scan and abstract foreign literature. She has been an active participant in the BIOSIS and data extraction projects.

Mrs. Pearl Stark continues as the Medical Documentation Service's editor. She also supervises the data extraction program and compiles foreign literature abstracts for the BIOSIS contract.

Miss Barbara Sturdivant left the department when the discontinuation of the abstracting bulletins curtailed data processing and graphic arts production activity.

Mrs. Elizabeth Wright provides machine skills and supervises the data processing and graphic arts aspects of the S.D.I. and other programs.

The Director of M.D.S. has accepted appointment as National Membership Chairman of the Special Libraries Association, member of the Board of Directors of Documentation Abstracts, Inc. and serves on the Advisory Committee on World Data Base of the National Federation of Science Abstracting and Indexing Services. Her paper in collaboration with Dr. Oliver Buchanan of the Pratt Institute of Library and Information Sciences has been expanded for presentation at the Special Libraries Association meeting in Boston in 1972 and for subsequent publication in the Association's journal.

THREE YEAR COMPARATIVE STATISTICS

	Jan. 1, 1969 to Dec. 31, 1969	Jan. 1, 1970 to Dec. 31, 1970	Jan. 1, 1971 to Dec. 31, 1971
Scanning references reported (SDI)	13,686	14,729	15,219
No. of SDI profiles (subjects)	83	82	90
No. of clients served in SDI	19	21	23
Abstracts			
English	2,132	2,627	2,353
Foreign	970	1,378	1,412
Total abstracts	3,102	4,005	3,765
Literature searches (retrospective)	470*	310*	125
Telephone reference service (recorded by number of requests)			1,700
Special projects			
Data Extraction projects			2
Indexing			2
Photocomposition			3
Editing and rewrite			2
Translations	54	115	80
MDS Xerox photoduplication requests (associated with telephone reference service and SDI service)			4,534
MDS Data Processing Services and Photocomposition			5

* Reporting of searches in the years 1969 and 1970 included telephone service requests, which in 1971 have been given a category in themselves because of the increased activity.

Albert D. Berton
Director, Medical Documentation Service

The Staff[9]

Librarian

Elliott H. Morse

Assistant to the Librarian

Mrs. Beatrice F. Davis

Library Secretary

Mildred C. Gray

Processing Dept.

Mrs. Sarah Caspari, Head

Cataloger

Mrs. Rebecca P. Canfield

Acquisition Assistant

Josefa Sereda

Mail Clerk

Richard Mascitti

Circulation Dept.
Reader's Service Ass'ts.

Dorothy Allen*
Ellen Laskin
Mrs. Arlene Voll

Paging Staff

Mrs. Judy Barnes
Bernadette Baus
Patricia Fox
Andrea Jancsura, Jr. Ass't.
Carol Sapp
Margot van Rossum

Serials Dept.

Mrs. Marybeth Leary, Head

Serials Librarian

Matilde Zalinski

Serials Assistants

E. Naomi Frazer
Mrs. Catherine Ledwell
Mrs. Eleanor Taylor*

Historical Collections

W. B. McDaniel, 2d, Ph.D., Curator
Mrs. Lisabeth Holloway, Assoc. Curator and Historical Cataloger
Jean Carr, Assistant to the Cataloger
Carolyn McAfee, Assistant for Book Preservation

Medical Documentation Service

Alberta D. Berton, Director
Linda Sue Frantz, Supervisor SDI Service
Mrs. Pearl Stark, Biomedical Literature/Scientist*
Harriet Rockwell, Ph.D., Biomedical Literature/Scientist*
Fritz Danga, Biomedical Literature/Scientist
Mrs. Bernice Odom, Biomedical Literature/Scientist
Erich Meitzner, Ph.D., Biomedical Literature/Scientist*
Mrs. Elizabeth Wright, Supervisor Data Processing
Mrs. Geraldine James, Reference Services

Regional Medical Library Program

Carol C. Spencer, Director
Jackie Rustigian, Library Consultant
Mrs. June Fulton, Head, Reg'l. Reference
Mrs. Ruthanne Henner, MEDLARS Analyst
Mrs. Catherine Orner, Sr. MEDLARS Analyst*
Mrs. Christine Balonis, Ref. Serv. Ass't.
Matilde Zalinski, Ref. Librarian
Ellen Frost, MEDLARS Ass't.
Barbara Cassady, Evaluation Ass't.
Mrs. Kathy Gudelunas, Regional Secretary

Regional Photocopy & Teletype Section

Joan McKenzie, Head
Elizabeth Bertram, Assistant
Mrs. La Verne Pittman, Assistant
Mrs. Carol Stills, Assistant

[9] Library staff list as of January 15, 1972.

* Part-time staff

List of College Lectures, 1971

6 January 1971

PETERSON, OSLER L. The Doctor Shortage: A Contrived Issue (Weir Mitchell Oration XIX; *Transactions & Studies,* July 1971)

3 February 1971

BETTELHEIM, BRUNO. Youth in Turmoil (Mary Scott Newbold Lecture C; *Transactions & Studies,* April 1972)

3 March 1971

DELUCA, HECTOR F. The Metabolism and Function of Vitamin D (Benjamin Musser Lecture XII; *Transactions & Studies,* July 1971)

12 May 1971

ERVIN, FRANK R. Violence and the Brain (Nathan Lewis Hatfield Lecture LIII; *Transactions & Studies,* April 1972)

6 October 1971

ZUBROD, C. GORDON. Chemotherapy in the Control of Disseminated Cancer (Catharine Macfarlane Lecture I)

3 November 1971

EFFLER, DONALD B. Myocardial Revascularization Surgery—The Cleveland Clinic Experience (Alvarenga Lecture XXX)

8 December 1971

LOURIA, DONALD B. The Drug Scene—1971 (James M. Anders Lecture L; *Transactions & Studies,* April 1972)

Transactions of the Sections

SECTION ON INSURANCE MEDICINE

5 May 1971

Insurance and Medicine—The Changing Scene. Edmund L. Zalinski, ph.D.

1 December 1971

Congenital Cardiac Defects in Adults. Hratch Kasparian, M.D.

SECTION ON MEDICAL HISTORY

16 February 1971

Psychiatry in Venezuela: A Brief Introduction. Harold Graff, M.D.

Hellenism in Modern Medicine. Nicholas Padis, M.D.

Historical Aspects of Congenital Heart Disease. William J. Rashkind, M.D.

27 April 1971

Historical Relationships between Tissue Culture and Transplantation Experiments. Jane M. Oppenheimer, Ph.D. (Kate Hurd Mead Lecture XXII)

26 October 1971

Dr. John Morgan's 18th-Century Journey Abroad, Retraced in 1970. Elizabeth M. Moyer

Doctor Abraham Chovet: The Perfect Original. Claire G. Fox

Dr. Richard Brookes: 18th-Century British Compiler of Books on Medicine, Geography and Natural History. Fred B. Rogers, M.D.

SECTION ON OPHTHALMOLOGY[1]

21 January 1971

Variations and Management of Ocular Toxoplasmosis. David L. Knox, M.D.*

* By invitation.

[1] Abstracts of the presentations at this Section customarily appear in the *American Journal of Ophthalmology* and *A.M.A. Archives of Ophthalmology*.

18 February 1971

The Vitreous in Clinical Ophthalmology. Norman S. Jaffee, M.D.*

The Vitreous and Peripheral Retinal Pathology. William Tasman, M.D.

18 March 1971

Clinical Aspects of Visual Electrophysiology. Ronald E. Carr, M.D.*

Nystagmus: Electronystagmographic Observation. Joseph U. Toglia, M.D.*

15 April 1971

Cyclovertical Muscle Paresis-Head Tilt. Donelson R. Manley, M.D. and Ronald Hughes, M.D.*

Fluorescein Angiography in the Diagnosis of Low Tension Glaucoma. George L. Spaeth, M.D.

Therapy of Canalicular Obstructions. James A. Katowitz, M.D.*

The Use of Plastic and Glass Beads for Reconstruction of the Deformed Orbit. Randall W. Bell, M.D.*

21 October 1971

Visual Problems in Early Childhood. Kenneth Wybar*

18 November 1971

Retinitis Pigmentosa: A Wastebasket Diagnosis. Harold F. Falls, M.D. (The Thirty-fourth Annual deSchweinitz Lecture)

SECTION ON OTOLARYNGOLOGY[2]

13 January 1971

Some Aspects of Nasal Physiology and Their Application to the Clinical Practice of Rhinology. Alvin P. Wenger, M.D.*

[2] Abstracts of the presentations at this Section customarily appear in the *A.M.A. Archives of Otolaryngology*.

17 March 1971

THE USE OF ULTRASOUND IN THE TREATMENT OF MENIERE'S DISEASE. Milos Bosek, M.D.*

MANAGEMENT OF DEVELOPMENTAL CYSTS OF THE NECK. Robin Rankow, M.D.* (Annual combined meeting with Section on Otolaryngology of the New York Academy of Medicine, held at the New York Academy of Medicine)

17 November 1971

RECENT FINDINGS ON THE MIDDLE EAR MECHANISM: CLINICAL IMPLICATIONS? Juergen Tonndorf, M.D.*

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1972

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Elizabeth M. Moyer

Superintendent

Theodore J. Kolodziejski

Editor, Transactions & Studies

Robert Erwin Jones

Fellows

ELECTED

1967. Abbiss, Joseph W., St. Francis Hospital, 8th & Dupont Sts., Wilmington, Del. (19805)
1968. Adams, Raymond E., #5 Split Rock Drive, Cherry Hill, N.J. (08034)
1961. Adamson, William C., 1542 Susquehanna Rd., Rydal, Pa. (19046)
1926. Adler, Francis Heed, 8870 Towanda St. (19118)
1959. Adlin, Albert, 1512 Lindley Ave. (19141)
1949. Aegerter, Ernest E., 3400 N. Broad St. (19140)
1953. Agerty, Horst A., 1230 Burmont Rd., Drexel Hill, Pa. (19026)
1964. Albert, Seymour M., 1305 W. Tabor Rd. (19141)
1963. Albright, Edwin P., 805 E. Willow Grove Ave. (19118)
1971. Alden, James C., Episcopal Hospital, Front and Lehigh Ave. (19125)
1967. Alexander, Charles M., 930 W. Sproul Road, Springfield, Pa. (19064)
1958. Alexander, John Deaver, 590 E. Chestnut St., Coatesville, Pa. (19320)
1935. Alpers, Bernard J., 111 North 49th St. (19139)
1960. Ames, Mary D., 290 St. James Place (19106)
1961. Amsterdam, Gerald H., 1201 W. Olney Ave. (19141)
1962. Annesley, William H., Jr., 39 Glendale Road, Upper Darby, Pa. (19082)
1961. Anthony, Russell A., 385 Lancaster Ave., Haverford, Pa. (19041)
1961. Aponte, Gonzalo E., 1025 Walnut St. (19107)
1930. *Appell, Kenneth E., 206 Glenn Rd., Ardmore, Pa. (19003)
1968. Apple, Stanley B., 333 West State St., Trenton, N.J. (08618)
1971. Ardizone, Rohlo A., 2109 Delancey Place (19103)
1960. Arey, James B., 2600 N. Lawrence St. (19133)
1959. Arkless, Henry A., 2 Decker Sq., Suite IL22 Decker Blvd. & City Line, Bala-Cynwyd, Pa. (19004)
1967. Armitage, Harry V., 225 E. 24th St., Chester, Pa. (19013)
1922. Arnett, John H., 2116 Pine St. (19103)
1967. Aronson, Marvin E., Office of Medical Examiner, 13th & Wood Sts. (19107)
1952. Ash, Rachel, 326 S. 19th St. (19103)
1952. Aston, Melville J., 6 Circle Drive, Margate, N.J. (08402)
1944. Atkins, Joseph P., 1201 Knox Rd., Wynnewood, Pa. (19096)
1956. Atkinson, John B., 624 Sussex Rd., Wynnewood, Pa. (19096)
1935. Atlee, John L., Jr., 822 Marietta Ave., Lancaster, Pa. (17603)
1952. Atlee, William A., 822 Marietta Ave., Lancaster, Pa. (17603)
1963. Austrian, Robert, Hospital of the University of Pennsylvania (19104)
1958. Ayella, Alfred S., Jr., 1213 S. Broad St. (19147)
1958. Baer, Samuel, 5123 N. Broad St. (19141)
1952. Baier, Howard N., 3401 N. Broad St. (19140)
1959. Baird, Henry Welles, III., 2600 N. Lawrence St. (19133)
1952. Baker, Howard W., 1333 Chestnut St. (19107)
1963. Baker, Richard B., 1851 E. Allegheny Ave. (19134)
1967. Baker, Richard P., Jr., Misericordia Hospital (19143)
1946. Baker, Walter W., 315 Glenn Rd., Ardmore, Pa. (19003)
1963. *Balin, Howard, 1323 Medical Arts Bldg., 1601 Walnut St. (19102)
1957. Baltzell, William Hewson, 1530 Locust St. (19102)
1971. Bank, Arnold A., Albert Einstein Medical Center (Northern) (19141)
1969. Bannett, Aaron D., 1335–49 W. Tabor Rd. (19141)
1940. Barba, Philip S., 120 Erdenheim Road (19118)
1943. Barden, Robert P., 8835 Germantown Ave. (19118)
1939. *Barnshaw, Harold D., 526 Cooper St., Camden, N.J. (08102)
1969. Baronofsky, Ivan D., 550 Washington St. #611, San Diego, Calif. (92103)

* S. Weir Mitchell Associate.

1957. *Barr, Stanley, 255 S. 17th St. (19103)
1939. Bartle, Harvey, Jr., Glenbrook Medical Bldg., 864 County Line Rd., Bryn Mawr, Pa. (19010)
1963. Bassett, James G., 3300 Henry Ave. (19129)
1971. Bassett, Samuel F., 501 Office Center Drive, Fort Washington, Pa. (19034)
1932. Batson, Oscar V., 3926 Pine St. (19104)
1921. Bauer, Edward L., Alden Park Manor (19144)
1933. Bauer, John T., 312 E. Second St., Moorestown, N.J. (08057)
1939. Baumann, Frieda, 200 N. Wynnewood Ave., Wynnewood, Pa. (19096)
1971. Beck, William C., Jr., 510 Office Center Drive, Fort Washington, Pa. (19034)
1952. *Bedrossian, E. Howard, 4501 State Rd., Drexel Hill, Pa. (19026)
1935. Beerman, Herman, 255 S. 17th St. (19103)
1942. Behrend, Albert, Coventry House, Valley Rd. & Coventry Ave. (19126)
1945. Behrend, Bernard, 5910 Green St. (19144)
1949. Beizer, Lawrence H., 419 South 19th St. (19146)
1936. Bell, Benjamin Tertius, 1941 Woodland Rd., Abington, Pa. (19001)
1956. Beller, Martin Leonard, 1936 Spruce St. (19103)
1969. Belmont, Herman S., 249 N. Broad St. (19107)
1956. Belmont, Owen, 5723 No. Park Ave. (19141)
1959. Berk, Nathaniel G., 3-M Cedarbrook Hill Apts., Wyncote, Pa. (19095)
1951. Bernstine, J. Bernard, Presidential Apts., City Line & Presidential Blvd. (19131)
1965. Berry, Richard G., 1025 Walnut St. (19107)
1956. Berry, Theodore J., 164 Pennsylvania Ave., Bryn Mawr, Pa. (19010)
1967. Beyer, Karl H., Jr., Merck Sharp & Dohme Res. Labs., West Point, Pa., (19486)
1957. Biele, Albert M., 1530 Locust St. (19102)
1964. Biele, Flora H., 1103 Spruce St. (19107)
1918. Billings, Arthur E., 2020 Spruce St. (19103)
1957. Birdsall, Thomas M., 3910 Powelton Ave. (19104)
1949. Bishop, Edward H., 811 Spruce St. (19107)
1933. Bishop, Paul A., The Dorchester, 226 W. Rittenhouse Sq. (19103)
1970. Black, Herman M., Dept. Radiology, Graduate Hosp. (19146)
1944. *Blady, John V., Parkway House, 2201 Benjamin Franklin Pkwy. (19130)
1970. Blain, Daniel, 2100 Clarkson Ave. (19144)
1960. Blake, Alton D., Jr., 960 County Line Rd., Bryn-Mawr, Pa. (19010)
1952. Blake, Paul O., 273 N. Lansdowne Ave., Lansdowne, Pa. (19050)
1958. *Blakemore, William S., 419 S. 19th St. (19146)
1971. Blizzard, John J., 2200 Providence Road, Chester, Pa. (19013)
1917. Block, Frank B., A1124 Park Drive Manor (19144)
1963. Block, Reuben, 1555 Haddon Ave., Camden, N.J. (08103)
1969. Blocklyn, Maurice J., School Lane, Rose Valley, Moylan, Pa. (19065)
1949. *Blumstein, George I., 2039 Delancey St. (19103)
1929. *Bockus, Henry L., 250 S. 18th St. (19103)
1928. *Boles, Russell S., Rittenhouse Plaza, 1901 Walnut St. (19103)
1961. Bongiovanni, Alfred M., 1740 Bainbridge St. (19146)
1948. Bookhammer, Robert S., 249 Hilldale Rd., Villanova, Pa. (19085)
1947. Bourland, Henry S., 2219 Garrett Rd., Drexel Hill, Pa. (19026)
1961. Bouzarth, William F., Episcopal Hospital (19125)
1961. Bove, Frank A., 2301 Pennsylvania Ave. (19130)
1968. Bowen, Thales, Jr., Lankenau Hosp. (19151)
1954. Bowers, Paul A., 2031 Locust St. (19103)
1942. Bowie, Morris A., Bryn Mawr Medical Bldg., Bryn Mawr, Pa. (19010)
1963. Boyer, Randall A., Holy Redeemer Hospital, Meadowbrook, Pa. (19046)
1964. Brackin, John T., Jr., 773 Roslyn Ave., Glenside, Pa. (19038)
1971. Bradley, Robert H., Jr., 33 E. Chestnut Hill Ave. (19118)
1965. Brady, Anna M., 3302 W. Queen Lane (19129)
1959. Brady, Luther W., 230 N. Broad St. (19102)

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1954. Bralow, S. Philip, 1025 Walnut St. (19107)
1921. Bransifeld, John W., 2031 Locust St. (19103)
1948. Braun, William, 406 Cooper St., Camden, N.J. (08102)
1953. *Brav, Solomon S., 5575 N. Park Ave. (19141)
1953. Breckenridge, Robert L., 414 Haddon Ave., Collingswood, N.J. (08108)
1964. Brenman, Arnold K., 8040 Roosevelt Blvd. (19102)
1966. Brent, Robert L., Jefferson Medical College (19107)
1961. Breslow, Irwin H., 1924 Panama St. (19103)
1946. *Briscoe, Clarence Conway, 811 Spruce St. (19107)
1953. Brobeck, John R., Univ. of Pa. School of Medicine (19104)
1958. Brody, Henry, Einstein Medical Center, York & Tabor Rds. (19141)
1965. Brody, Jerome I., Graduate Hospital, 19th & Lombard Sts. (19146)
1952. Brody, Morris W., 2 W. Levering Mill Rd., Cynwyd, Pa. (19004)
1948. Brogan, Edmund J., 4601 Market St. (19139)
1958. Brooks, Frank P., Hospital of the Univ. of Pa. (19104)
1932. *Brown, Claude P., 6401 Wissahickon Ave. (19119)
1967. Brown, Clement R., Jr., Chestnut Hill Hospital (19118)
1963. Browne, Laurence T., Presidential Apts., D126 (19131)
1971. Brucker, Paul C., 500 Willow Ave., Ambler, Pa. (19002)
1961. Brunt, Manly Y., 111 N. 49th St. (19139)
1939. Brust, Raymond M., 301 Mill Rd., Havertown, Pa. (19083)
1969. Bryant, Winston M., Jr., 5900 Spruce St. (19139)
1971. Buch, Heriberto E., 211 Shadeland Ave., Lansdowne, Pa. (19050)
1969. Buchheit, William A., 3401 N. Broad St. (19140)
1961. Buerk, Minerva S., Bryn Mawr Medical Bldg., Bryn Mawr, Pa. (19010)
1971. Bullock, Samuel C., 6th floor, 5000 Woodland Ave. (19143)
1962. *Burgoon, Carroll F., Jr., Skin & Cancer Hospital, 3322 N. Broad St. (19140)
1940. *Burnett, W. Emory, 47 E. Righters Mill Rd., Narberth, Pa. (19072)
1966. Burns, William P., 3400 Spruce St. (19104)
1954. Burros, Harry M., 419 S. 19th St. (19146)
1968. Burrows, Stanley, Cooper Hosp., Camden, N.J. (08103)
1966. Burstein, Frank, 8541 Bustleton Ave. (19152)
1970. Butcher, James, 51 N. 39th St. (19104)
1941. Butler, Miriam, Watersmeet, Glen Mills, Pa. (19342)
1957. *Butterworth, Thomas, 411 Walnut St., Reading, Pa. (19601)
1965. Byron, Harold J., Wyncote House, Wyncote, Pa. (19095)
1966. Cahn, Milton M., 1930 Chestnut St. (19103)
1957. Calhoun, John Alfred, Jr., 214 Elm Ave., Swarthmore, Pa. (19081)
1958. Cameron, Charles S., 230 N. Broad St. (19102)
1962. Camishion, Rudolph C., Suite 303, Cooper Parkway West, N. Park Drive & Airport Highway, Pennsauken, N.J. (08109)
1952. Campbell, Edward W., Abington Memorial Hospital (19001)
1964. Cancelmo, Jesse J., Jr., 337 W. Lancaster Ave., Wayne, Pa. (19087)
1970. Canino, Christopher W., 1900 S. Broad St. (19145)
1967. Carabasi, Ralph A., 255 S. 17th St. (19103)
1935. Carey, Lawrence S., 2241 Garrett Road, Drexel Hill, Pa. (19026)
1971. Carfagno, Salvavtore C., 1401 De Kalb St., Norristown, Pa. (19401)
1970. Carmichael, Paul L., 601 E. Main St., Lansdale, Pa. (19446)
1959. Carrington, Elsie R., The Medical College of Pennsylvania (19129)
1960. Carroll, Robert T., 1015 Chestnut St., Jefferson Bldg., Room 803 (19107)
1917. Carson, John B., Newton Square, Pa. (19073)
1956. Carty, James Byron, 51 Hampden Rd., Upper Darby, Pa. (19082)
1956. Casey, Paul R., 8350 Roosevelt Blvd. (19152)
1943. Castigliano, S. Gordon, Central & Shelmire Aves. (19111)
1949. Caswell, H. Taylor, 3401 N. Broad St. (19140)
1954. Cathcart, Richard T., Jefferson Hospital, 1025 Walnut St. (19107)

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1950. *Chamberlain, Richard H., 3400 Spruce St. (19104)
1939. Chamberlin, George W., Reading Hospital, Reading, Pa. (19602)
1967. Chambers, Richard A., 1025 Walnut St. (19107)
1966. Chamblin, William D., Suite 303, 3900 Powelton Ave. (19104)
1945. Chance, Burton, Jr. 4400 Baltimore Ave. (19104)
1958. Channick, Bertram J., 3701 N. Broad St. (19140)
1954. *Charny, Charles W., 2039 Delancey Pl. (19103)
1966. Chernoff, Benjamin, 6901 Old York Rd. (19126)
1969. Chesnick, Reuben B., 517 Penn St., Camden, N.J. (08102)
1960. Chirico, Anna-Marie, Hosp. of Univ. of Pa. (19104)
1966. Chisum, Melvin J., 245 N. Broad St. (19107)
1971. Chmielewski, Robert E., 8040 Roosevelt Blvd. (19152)
1939. Ciccone, Emmet F., 2000 Willowbrook Rd., Huntingdon Valley, Pa. (19006)
1960. Clader, Stanley C., 825-A Glenbrook Ave., Bryn Mawr, Pa. (19010)
1951. Clagett, A. Henry, Jr., 515 W. Eighteenth St., Wilmington, Del. (19802)
1966. Clark, Gerald R., Elwyn School, Elwyn, Pa. (19063)
1962. Clark, James E., Crozer-Chester Med. Center, 15th & Upland Aves., Chester, Pa. (19013)
1951. Clark, John Kapp, Regional Med. Program, B-McIlhenny, 36th and Hamilton Walk (19104)
1947. Clark, Thomas William, 6 Moreland Circle (19118)
1971. Clearfield, Harris R., 720 Oxford Road, Bala-Cynwyd, Pa. (19004)
1963. Cleveland, Albert F., 615 Morgan Ave., Drexel Hill, Pa. (19026)
1969. Cohen, Erwin A., 6735 Harbison Ave. (19149)
1970. Cohen, Norman N., Misericordia Hosp. (19143)
1953. Cohen, Robert V., 520 Spring Ave., Elkins Park, Pa. (19117)
1967. *Cohen, Sarle H., 1201 W. Olney Ave. (19141)
1965. Cohn, Edwin M., 1351 Tabor Rd. (19141)
1964. Cohn, Herbert E., 829 Spruce St. (19107)
1970. Cohn, Ronald E., 4940 Frankford Ave. (19124)
1949. Conger, Kyril B., 3401 N. Broad St. (19140)
1971. Connor, Robert W., 601 E. Main St., Lansdale, Pa. (19446)
1961. Coon, Julius M., 1025 Walnut St. (19107)
1945. Coonel, Pauline, 47 E. Mt. Pleasant Ave. (19119)
1953. *Cooper, Donald R., 3300 Henry Ave. (19129)
1960. Cooper, Edward Sawyer, 6710 Lincoln Drive (19119)
1947. Coppolino, John F., 22 Pickthorn Drive, Batavia, N.Y. (14020)
1952. *Corbit, John D., Jr., 414 Lankenau Medical Bldg. (19151)
1959. Cormeny, George F., 3818 Chestnut St. (19104)
1965. Cornelison, Floyd S., Jr., 1127 Walnut St. (19107)
1970. Cossa, John P., 1900 S. Broad St. (19145)
1940. Cowan, Thomas H., 1930 Chestnut St. (19103)
1966. Cram, Robert H., 918 County Line Rd., Bryn Mawr, Pa. (19010)
1947. *Crane, A. Reynolds, Pennsylvania Hospital (19107)
1952. Crellin, J. Antrim, 1930 Chestnut St. (19103)
1970. Cresson, Samuel L., Lankenau Medical Building (19151)
1968. Crichlow, Robert W., 3400 Spruce St. (19104)
1955. Crist, Walter A., 211 N. 5th St., Camden, N.J. (08102)
1968. Croll, Millard N., Hahnemann Hosp. (19102)
1959. Cullen, Milton L., 1936 Cottman Ave. (19111)
1962. Cunningham, John D., 3400 Spruce St. (19104)
1934. Custer, R. Philip, 643 Moreno Road, Narberth, Pa. (19072)
1958. D'Alonzo, Walter A., 1647 S. 15th St. (19145)
1938. Dannenberg, Arthur M., Sr., 235 S. 15th St. (19102)
1968. Daughtridge, Truman G., 8835 Germantown Ave. (19118)
1969. Davidson, Jay H., 1002 Spruce St. (19107)
1953. Davie, John H., 216 N. Broad St. (19102)

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1970. Davis, Charles M., Jr., 918 County Line Rd., Bryn Mawr, Pa. (19010)
1947. *Davis, C. Nelson, 524 Howe Rd., Merion Station, Pa. (19066)
1936. Davis, David M., 960 County Line Rd., Bryn Mawr, Pa. (19010)
1951. *Davis, J. Wallace, 135 S. 18th St. (19103)
1961. Dawber, Bryan A., Penn Mutual Life Insurance Co. (19105)
1971. Deakins, James S., 33 E. Chestnut Hill Ave. (19118)
1971. Deas, Thomas C., 3401 N. Broad St. (19140)
1935. *Deaver, J. Montgomery, Lankenau Medical Bldg. (19151)
1957. Decker, John Paul, Pennsylvania Hospital (19107)
1957. Dees-Porch, Frances, Glendale Road & Chestnut Sts., Upper Darby, Pa. (19082)
1958. Dietz, George W., III, 2240 Pine Rd., Huntingdon Valley, Pa. (19006)
1952. DeLuca, Charles Q., 255 S. 17th St. (19103)
1969. Denbo, Elic A., 300 Broadway, Camden, N.J. (08103)
1952. De Orsay, Ralph H., 1241 Lindale Ave., Drexel Hill, Pa. (19027)
1951. *De Palma, Anthony F., 248 S. 21st St. (19103)
1963. Derham, Robert J., McClatchy Bldg., Upper Darby, Pa. (19082)
1966. deRivas, Carmela F., 700 Joseph Dr., Wayne, Pa. (19087)
1969. Desiderio, Vincent C., 1907 S. Broad St. (19148)
1959. DeTuerk, John J., 2301 S. Broad St. (19148)
1971. Deutsch, Joel, Episcopal Hosp., Front & Lehigh Ave. (19125)
1959. Dickens, Helen O., University of Pa. Hosp. (19104)
1968. Dickensheets, James G., 223 S. 6th St., Camden, N.J. (08103)
1958. Dickstein, Benjamin, 6810 Castor (19124)
1956. Dietrich, Herbert James, Jr., 801 Old Lancaster Rd., Bryn Mawr, Pa. (19010)
1952. Digilio, Victor A., 2200 St. James Place (19117)
1963. DiMarino, Anthony J., 735 Delaware St., Paulsboro, N.J. (08066)
1960. Dinon, Louis R., 330 S. 9th St. (19107)
1968. Di Palma, Joseph R., 235 N. 15th St. (19102)
1920. Doane, Joseph C., 5286 34th Ave., N., St. Petersburg, Fla. (33710)
1948. Dohan, Frances Curtis, 80 Princeton Road, Cynwyd, Pa. (19004)
1969. Dolphin, John M., 235 N. 15th St. (19102)
1954. Donaldson, James B., 3401 N. Broad St. (19140)
1967. Donnelly, Joseph C., Jr., Lankenau Medical Bldg. (19151)
1962. Dorman, Philip J., 151 Ridgemont Rd., Grosse Pointe Farms, Mich. (48236)
1967. Dougherty, Malvin J., 34 Copley Rd., Upper Darby, Pa. (19082)
1964. Dratman, Mary B., Henry Ave. & Abbottsford Road (19129)
1952. Drayer, Calvin S., 111 N. 49th St. (19139)
1949. *Dripps, Robert D., 3400 Spruce St. (19104)
1969. Drossner, Jacob L., 101 E. Cooper River Plaza, Pennsuaken, N.J. (08109)
1935. Duncan, Garifeld G., 330 S. 9th St. (19107)
1966. Duncan, Theorode G., 330 S. Ninth St. (19107)
1953. Dupler, Donald A., 4028 Walnut St. (19104)
1942. *Durant, Thomas M., 1242 Lafayette Rd., Gladwyne, Pa. (19035)
1962. D'Zmura, Thomas L., 944 Summit Ave., Narberth, Pa. (19072)
1969. Dzwonczyk, John, Jr., 45 Ashby Rd., Upper Darby, Pa. (19082)
1936. Easby, Mary Hoskins, R.D. 2, Shelburne, Vt. (05482)
1966. Ehrlich, George E., Albert Einstein Medical Center, N.D. (19141)
1956. *Eiman, John W., Abington Memorial Hospital, Abington, Pa. (19001)
1962. Eisenberg, Samuel W., 625 Radcliffe St., Bristol, Pa. (19007)
1959. Eisenhower, James S. D., Jr., 2704 Pacific Ave., Wildwood, N.J. (08260)
1958. *Eisman, Sylvan H., 3600 Spruce St. (19104)
1971. Eisner, Joel W., 603 S. Main St., Phoenixville, Pa. (19460)
1959. Elias, Elmer J., 10 Monticello Ave., Trenton, N.J. (08618)
1949. Elkinton, J. Russell, Oak Lane, Moylan, Pa. (19065)
1961. Elliott, Frank A., 807 Spruce St. (19107)
1957. Ellis, Richard A., 255 S. 17th St. (19103)

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1955. Ellis, Samuel, 275 Bryn Mawr Ave., Bryn Mawr, Pa. (19010)
1939. Ellis, Van Mashburn, 1528 Spruce St. (19102)
1928. Ellison, Richard T., Medical Office Bldg., 1245 Highland Ave., Abington, Pa. (19001)
1936. Ellson, J. Vernon, Glendale Road & Chestnut St., Upper Darby, Pa. (19082)
1937. *Elsom, Kendall A., Scott Paper Co. (19113)
1932. Engel, Gilson C., Lankenau Medical Bldg. (19151)
1945. *English, O., Spurgeon, 449 Righters Mill Rd., Narberth, Pa. (19072)
1970. English, Thomas J., 1950 Montgomery Ave., Villanova, Pa. (19085)
1965. Epstein, Isadore S., 5219 Lebanon Ave. (19131)
1942. Erb, William H., Medical Bldg., Presbyterian-Univ. of Penna. Med. Center, 3910 Powelton Ave. (19104)
1957. Erdman, William James, II, 3400 Spruce St. (19104)
1965. Erslev, Allan J., 1015 Sansom St. (19107)
1957. Etzl, Michael M., 9025 Frankford Ave. (19114)
1955. Eynon, Harold K., Route 70 at East Gate, Barclay Farm, Cherry Hill, N.J. (08033)
1968. Faludi, Georgina, Hahnemann Hosp. (19102)
1946. Farell, David M., 1912 Spruce St. (19103)
1945. Farrar, George Elbert, Jr., 528 Scott Rd., Gladwyne, Pa. (19035)
1953. Farrell, Harry L., The Chatham, 135 S. 20 St. (19103)
1964. Faust, Herbert A., Paoli Memorial Hosp. Med. Bldg., W. Lancaster Ave., Paoli, Pa. (19301)
1936. *Fetter, Ferdinand, 322 S. 21st St. (19103)
1945. Fetter, John S., 1980 Country Club Dr., Huntingdon Valley, Pa. (19006)
1952. *Fields, Harry, 133 S. 36th St. (19104)
1959. Fineberg, Charles, Franklin Med. Bldg., 829 Spruce St. (19107)
1955. Finestone, Albert J., 3701 North Board St. (19140)
1943. *Finkelstein, Arthur K., Graduate Hospital (19146)
1955. Finkelstein, David, 419 S. 19th St. (19146)
1955. *Finley, John K., 527 Welsh St., Chester, Pa. (19013)
1954. *Finn, Joseph L., 8014 Burholme Ave. (19111)
1947. First, Arthur, 1714 Spruce St. (19103)
1954. Fischer, Carl C., Oak Hill Apt. W-321, Narberth, Pa. (19072)
1950. *Fischer, H. Keith, School Lane House, 5450 Wissahickon Ave. (19144)
1962. Fisher, George R., III, 801 Spruce St. (19107)
1958. Fisher, Robert M., 118 Airdale Rd., Rosemont, Pa. (19010)
1970. Fishman, Alfred P., Rm. 282 Gibson Bldg., HUP, 3400 Spruce St. (19104)
1956. Fite, Franklin K., Germantown Hospital (19144)
1952. Fitts, William T., Jr., 3400 Spruce St. (19104)
1971. Flandreau, Richard H., Media Clinic, Media, Pa. (19063)
1970. Fleischmajer, Raul, 230 N. Broad St. (19102)
1952. Flexner, Louis B., 248 Anatomy-Chemistry Bldg., Univ. of Pa. (19104)
1928. *Flick, John B., 819 Black Rock Rd., Gladwyne, Pa. (19035)
1957. Fornwalt, George R., 47 Copley Rd., Upper Darby, Pa. (19082)
1954. Forster, H. Walter, Jr., 37 S. 20th St. (19103)
1960. Foulger, John H., 601 Rockwood Rd., Wilmington, Del. (19802)
1963. Frank, Paul E., York Road & Summit Ave., Hatboro, Pa. (19040)
1963. Frank, Robert L., 1282 Rydal Rd., Rydal, Pa. (19046)
1968. Frankl, William S., 1121 Cornwall Lane, St. Davids, Pa. (19087)
1955. Frayer, William C., Franklin Med. Bldg., 829 Spruce St. (19107)
1941. Frazier, William Doane, 419 Gilpin Rd., Narberth, Pa. (19072)
1952. Freed, Herbert, 255 S. 17th St. (19103)
1956. Freeman, Joseph T., 8-A Rittenhouse Plaza (19103)
1958. Freiwald, Milton J., 222 S. 19 St. (19103)
1955. Friedenberg, Zachary B., 133 S. 36 St. (19104)
1951. Friedman, Paul Sigmund, 1422 Chestnut St. (19102)
1960. Friedman, Sidney, 1740 Bainbridge St. (19146)

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1958. Frisch, Frederick, 7 S. Dudley Ave., Ventnor City, N.J. (08046)
1937. Fritz, Herbert H., Pennswood Rd., Bryn Mawr, Pa. (19010)
1961. Frobese, Alfred S., Abington Memorial Hosp., Abington, Pa. (19001)
1935. Fry, Wilfred Eyles, 1930 Chestnut St. (19103)
1963. Furgiuele, Francis P., 5430 Greene St. (19144)
1937. Furlong, Thomas F., Jr., 630 Black Rock Rd., Bryn Mawr, Pa. (19010)
1967. Futcher, Palmer H., 3930 Chestnut St. (19104)
1964. Galligan, William J., 2909 Garrett Road, Drexel Hill, Pa. (19026)
1954. Gambescia, Joseph M., 1907 S. Broad St. (19148)
1969. Ganz, Michael A., R.D. #2, Box 207, Perkasie, Pa. (18944)
1966. Garcia, Celso-Ramon, University Hospital (19104)
1969. Gardiner, George C., 907 Pine St. (19107)
1971. Gardner, Frank H., 51 N. 39th St. (19104)
1951. Garlichs, Richard W., 216 N. Manoa Road, Havertown, Pa. (19083)
1931. Garner, Vaughn C., 477 East Wadsworth St. (19119)
1953. Garnet, James D., 807 Spruce St. (19107)
1959. Gartland, John J., 621 Curtis Clinic Bldg., 1015 Walnut St. (19107)
1950. Garvin, Eugene J., 533 S. 46th St. (19143)
1958. Geckeler, George D., 22 W. Bells Mill Rd. (19118)
1952. Gefter, William I., Episcopal Hosp. (19125)
1969. Gehring, David A., Medical Arts Bldg., Suite 21, W. Red Bank Ave., Woodbury, N.J. (08096)
1935. Geist, Donald C., 1205 Penn Wynne House, 2201 Bryn Mawr Ave., Bryn Mawr, Pa. (19131)
1955. Gelfand, David, 1722 Pine St. (19103)
1969. Gellhorn, Alfred A., 3400 Spruce St. (19104)
1965. Georges, Thomas W., Jr., 3400 N. Broad St. (19140)
1959. Gerson, Irvin M., Cedarbrook Apts., Cedarbrook Hills, Wyncote, Pa. (19095)
1968. Gerstley, Louis, III, Cedarbrook Hill Apt. CM23, Wyncote, Pa. (19095)
1955. Gettes, Bernard C., 128 Overhill Rd., Cynwyd, Pa. (19004)
1963. Giambalvo, Giacchino P., 6370 Church Rd. (19151)
1965. Gianakon, Harry G., 111 N. 49th St. (19139)
1934. *Gibbon, John H., Jr., 2103 N. Providence Rd., Media, Pa. (19063)
1939. *Gibson, Glen Gregory, 2031 Locust St. (19103)
1944. Gifford, Edwards S., Jr., 1913 Spruce St. (19103)
1956. Gilbert, Philip D., Cooper Hospital, Camden, N.J. (08103)
1967. Gilbert, Robert P., 1025 Walnut St. (19107)
1947. Giletto, Basil J., 2020 Locust St. (19103)
1955. Gill, Robert J., 715 Spruce St. (19106)
1952. Gilpin, Sherman F., Jr., 1023 Beury Building, 3701 N. Broad St. (19140)
1965. Ginley, Thomas H., Jr., Presidential Apts. (19131)
1949. Ginsburg, Isadore W., 3401 N. Broad St. (19140)
1958. Girsh, Leonard S., Benjamin Fox Pavilion, Jenkintown, Pa. (19046)
1954. Gislason, Gerhard J., 1245 Highland Ave., Abington, Pa. (19001)
1971. Glaser, Frederick B., EPPI, Henry Ave. & Abbottsford Rd. (19129)
1967. Glauser, Stanley C., 630 Richards Rd., Wayne, Pa. (19087)
1964. Gloeckner, M. Louise C., 110 E. Fourth Ave., Conshohocken, Pa. (19428)
1956. Goldberg, Harry, 7913 Rolling Green Rd., Cheltenham, Pa. (19012)
1970. Goldberg, Richard E., 1333 Buck Road, Feasterville, Pa. (19048)
1965. Goldburgh, Warren P., 275 S. 19th St. (19103)
1971. Goldfarb, Alvin F., 829 Spruce St. (19107)
1969. Goldman, Leonard I., Temple Univ. Hosp. (19140)
1965. Goodman, David H., 6816 Castor Ave. (19149)
1956. Goracci, Armando F., Medical Arts Bldg., Woodbury, N.J. (08096)
1968. Gordon, Jacob S., 5119 N. Broad St. (19141)
1968. Gordon, Kenneth H., Jr., 1250 Upper Gulph Rd., Radnor, Pa. (19087)

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1937. Gordon, William, 5345 Spruce St. (19139)
1968. Gordy, Philip D., 1025 Walnut St. (19107)
1964. Gottlieb, Harry, 5555 Wissahickon Ave. (19144)
1964. Gottlieb, Philip M., 818 Medical Arts Bldg., 16th & Walnut Sts. (19102)
1967. Gould, Robert A., 701 N. Pennsylvania Ave., Morrisville, Pa. (19067)
1956. *Gouley, Benjamin, 1201 W. Olney Ave. (19141)
1966. Gowen, George F., Misericordia Hospital (19143)
1966. Grant, B. David, 918 County Line Road, Bryn Mawr, Pa. (19010)
1965. Grassi, Michael O. A., 2038 Locust St. (19103)
1965. Greenbaum, Charles H., 8220 Castor Ave. (19152)
1971. Greenberg, Jack O., Front & Lehigh Ave. (19125)
1940. Greene, Lloyd B., 326 S. 19 St. (19103)
1952. *Greening, Roy R., 801 Broadway, Seattle, Wash. (98104)
1971. Groff, Harold, 111 N. 49th St. (19139)
1941. *Groff, Robert A., Suite 2306–08 Medical Tower, 255 S. 17th St. (19103)
1952. *Grotzinger, Paul J., 2121 Valley Rd., Huntingdon Valley, Pa. (19006)
1952. *Grove, D. Dwight, 5025 N. Marvine St. (19141)
1966. Guthrie, Marshall B., 1500 Spring Garden St. (19101)
1945. György, Paul, Philadelphia General Hospital (19104)
1969. Haase, Gunther R., 3401 N. Broad St. (19140)
1935. Hadden, Samuel B., 135 S. 19th St. (19103)
1945. Hahn, George A., 255 S. 17th St. (19103)
1967. Haines, Keith E., 300 S. Broadway, Camden, N.J. (08103)
1964. Hall, John H., 3401 N. Broad St. (19140)
1955. Hallahan, John D., 104 W. Front St., Media, Pa. (19063)
1951. Hallett, Joseph W., 136 S. 16th St. (19102)
1961. Hammett, Van Buren O., 249 N. Broad St. (19107)
1967. Hammond, Jonathan A., 433 Bellevue Ave., Trenton, N.J. (08618)
1954. Hand, B. Marvin, 1801 Pennsylvania Blvd. (19103)
1938. Hand, John G., 1724 Pine St. (19103)
1964. Hanes, Robert B., Ashby Rd. & Chestnut St., Upper Darby, Pa. (19082)
1963. Hanhausen, Edward H., 418 E. Lancaster Ave., Wayne, Pa. (19087)
1950. Hansen, A. Victor, 910 Centennial Rd., Penn Valley, Narberth, Pa. (19072)
1970. Hardesty, William H., 433 Bellevue Ave., Trenton, N.J. (08607)
1951. Harkins, Herbert P., Suite 122 Lankenau Hosp. Med. Bldg. (19151)
1971. Harley, Robison D., 1601 Spring Garden St. (19130)
1966. Harner, Richard N., Graduate Hospital (19146)
1963. Harris, Charles, Gold & Washington Sts., Toms River, N.J. (08753)
1962. Harris, James R., 3222 W. Penn St. (19129)
1959. Harris, James S. C., Medical Office Bldg., 666 E. Penn St. (19144)
1948. Harris, T. N., 5112 Woodbine Ave. (19131)
1929. Harrison, Francis G., 1900 Spruce St. (3)
1961. Harvie, Fred H., 20 E. Newfield Way, Bala Cynwyd, Pa. (19004)
1935. *Haskell, Benjamin F., 1427 Spruce St. (19102)
1968. Haskin, Marvin E., 245 N. Broad St. (19107)
1958. Haupt, George J., Lankenau Medical Bldg. (19151)
1960. Hausman, David H., Pennsylvania Hospital, 8th & Spruce Sts. (19107)
1947. Havens, Walter Paul, Jr., 139 Cheswald Lane, Haverford, Pa. (19040)
1947. *Hawthorne, Herbert R., 3625 Darby Rd., Bryn Mawr, Pa. (19010)
1963. Hayes, Merrill B., 2112 Providence Ave., Chester, Pa. (19013)
1952. Hayllar, Benjamin L., Bryn Mawr Med. Bldg., Bryn Mawr, Pa. (19010)
1961. Hayward, Malcolm L., 560 Maplewood Rd., Wayne, Pa. (19087)
1961. Heath, Frederick K., 230 N. Broad St. (19102)
1957. Hedges, Thomas R., Jr., 330 South 9th St. (19107)
1961. Heggestead, Gilman E., 207 Bryn Mawr Bldg., Bryn Mawr, Pa. (19010)
1965. Heil, Charles G., Jr., The Benson East, Jenkintown, Pa. (19046)

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1965. Heine, William I., 5579 N. Park Ave. (19141)
1967. Helwig, John, Jr., Germantown Hosp. (19144)
1944. Herbut, Peter A., Dept. of Pathology, Jefferson Medical College Hospital (19107)
1971. Hermel, Mortimer B., 255 S. 17th St. (19103)
1954. Herron, James R., 1486 Haddon Ave., Camden, N.J. (08103)
1963. Hesch, Joseph A., Mercy Catholic Med. Center, Darby, Pa. (19023)
1949. Heyl, W. Meredith, Medical Office Bldg., 666 E. Penn St. (19144)
1961. Hilferty, Daniel J., Jr., Apt. 506, 191 Presidential Blvd., Bala-Cynwyd, Pa. (19004)
1952. Hinkson, DeHaven, 329 N. 40th St. (19104)
1924. Hirst, John C., 2d., 2016 Rittenhouse Sq. (19103)
1943. Hitschler, William J., Bethlehem Pike & Summit (19118)
1944. Hneleski, Ignatius S., 802 S. 48th St. (19143)
1943. Hockaday, Agnes, 316 Shadeland Ave., Drexel Hill, Pa. (19026)
1947. *Hodges, John H., 1025 Walnut St. (19107)
1963. Hoffman, Carl J., 2901 Cottman Ave. (19149)
1948. Hoffman, George L., Jr., 133 S. 36th St. (19104)
1965. Holfelner, Edward D., Chestnut St. & Ashby Road, Upper Darby, Pa. (19082)
1964. Hollander, George, 3500 Vista St. (19136)
1949. Hollander, Joseph L., 36th & Spruce Sts. (19104)
1964. Holling, Herbert E., 3400 Spruce St. (19104)
1951. Hollis, Charles B., The Cambridge Apts. (19144)
1952. Holloway, Edward E., 1736 Pine St. (19103)
1966. Holly, Roy G., 1025 Walnut St. (19107)
1966. Holter, F. Robert, 1911 Spruce St. (19103)
1971. Hooper, William E., 3401 N. Broad St. (19140)
1949. Hopkins, Henry U., Garden Court Plaza, 47th & Pine Sts. (19143)
1953. Horan, Charles A., 272 N. Lansdowne Ave., Lansdowne, Pa. (19050)
1946. Horan, Gerald W., Marple-Newton Medical Bldg., Newton Square, Pa. (19073)
1947. *Horwitz, Orville, Pennsylvania Hosp., 8th & Spruce Sts. (19107)
1950. Houlihan, Carl T., 819 Gatemore Rd., Bryn Mawr, Pa. (19010)
1944. Housel, Edmund L., 255 S. 17th St. (19103)
1958. *Howard, John M., Crozer-Chester Med. Cntr., Upland, Chester, Pa. (19013)
1964. Howell, Doris A., 3300 Henry Ave. (19129)
1951. Hubbard, John P., 3930 Chestnut St. (19104)
1947. *Huber, John Franklin, Temple University School of Medicine (19140)
1937. Hughes, Joseph, 111 N. 49th St. (19139)
1939. Hughes, P. Boland, 419 Hillbrook Rd., Bryn Mawr, Pa. (19010)
1968. Hume, H. Alan, 3 E. Ridley Ave., Ridley Park, Pa. (19078)
1968. Hummeler, Klaus, Children's Hosp. (19146)
1951. Hundley, J. Warren, 3818 Chestnut St. (19104)
1954. Hunsicker, William C., Jr., 245 N. Broad St. (19107)
1946. Hunt, William T., Jr., Suite 945, 1617 J. F. Kennedy Blvd. (19103)
1921. Hunter, Robert John, 928 N. 63rd St. (19151)
1967. Huth, Edward J., American College of Physicians, 4200 Pine St. (19104)
1952. Hyman, Harold L., 3401 N. Broad St. (19140)
1950. *Imbriglia, Joseph E., 934 Cedar Grove, Wynnewood, Pa. (19096)
1949. Ingraham, Norman R., Jr., Stenton and Whitemarsh Aves. (19118)
1957. Isaacson, Howard, Haverford Ave. & Drexel Rd. (19151)
1951. *Isard, Harold J., Albert Einstein Medical Center, York & Tabor Rds. (19141)
1951. *Israel, Harold L., 1825 Pine St. (19103)
1921. Ivy, Robert H., 44 Pennock Terrace, Lansdowne, Pa. (19050)
1967. Jacoby, Jay J., 1025 Walnut St. (19107)
1967. Jaeger, Edward A., Media Clinic, Media, Pa. (19063)
1965. Jenkins, B. Wheeler, 1526 E. Upsal St. (19150)
1943. *Johnson, Julian, 3400 Spruce St. (19104)
1938. Johnson, Thomas A., 135 S. 18th St. (19103)

* S. Weir Mitchell Associate.

1963. Jones, Robert E., 111 N. 49th St. (19139)
1967. Jones, W. Mead, Somerset House, Fort Washington, Pa. (19034)
1963. Joseph, Rosaline R., 3401 N. Broad St. (19140)
1966. *Joyce, John J., III, Medical Office Bldg., 666 E. Penn St. (19144)
1961. Joyner, Claude R., Jr., 230 N. Broad St. (19102)
1957. Kacher, Leon, 2037 Pine St. (19103)
1936. Kain, Thomas M., 3025 W. Chapel Ave., Cherry Hill, N.J. (08034)
1969. Kain, Thomas M., Jr., Cooper Parkway W., Suite 301 N. Park Dr., Pennsauken, N.J. (08109)
1948. Kaplan, Louis, 2040 Pine St. (19103)
1964. *Kaplan, S. Richard, 419 S. 19th St. (19146)
1970. Kashatus, William C., 230 N. Broad St. (19102)
1958. Kasser, Max D., 101 S. 20th St. (19103)
1970. Kastor, John A., HUP, 3400 Spruce St. (19104)
1971. Katowitz, James A., 1930 Chestnut St. (19103)
1945. Katz, G. Henry, 111 N. 49th St. (19139)
1941. Kauffman, M. Luther, Medical Arts Bldg., Jenkintown, Pa. (19046)
1947. Kay, Calvin Frederick, 4200 Pine St. (19104)
1954. Kaye, Robert, Children's Hospital, 1740 Bainbridge St. (19146)
1968. Keates, Edwin U., 2385 Cheltenham Ave. (19150)
1947. Keefer, George Pfahler, 136 S. 16th St. (19102)
1970. Keeler, Louis L., Jr., 501 Haddon Ave., Haddonfield, N.J. (08033)
1963. Keeley, Francis X., 501 Haddon Ave., Haddonfield, N.J. (08033)
1966. Keeney, Arthur H., Wills Eye Hospital (19130)
1949. Keiserman, Joseph, 1900 John F. Kennedy Blvd. (19103)
1965. Kellow, William F. T., 1025 Walnut St. (19107)
1932. *Kelly, Herbert T., 1830 Delancey Place (19103)
1961. Kelly, William E., 111 N. 49th St. (19139)
1941. Kennedy, Patrick J., 32 Hampden Rd., Upper Darby, Pa. (19082)
1948. Kern, Franklin Moore, 903 Nicholson Rd., Wynnewood, Pa. (19096)
1921. *Kern, Richard A., Temple University Hospital, 3401 N. Broad St. (19140)
1935. Keyes, Baldwin L., 2031 Locust St. (19103)
1971. Kimbel, Philip, Albert Einstein Medical Center (N) (19141)
1936. King, Orville S., 330 S. 9th St. (19107)
1970. King, Warren E., Jr., 230 N. Broad St. (19102)
1952. Kirschner, Jacob J., 1930 Chestnut St. (19103)
1969. Kissick, William L., Dept. Community Med., 36th & Hamilton Walk (19104)
1960. Kitchell, J. Roderick, Abington Hospital Medical Office Bldg., 1245 Highland Ave., Abington, Pa. (19001)
1954. Kligman, Albert M., 36th & Spruce Sts. (19104)
1934. Kline, Oram R., 896 Lake Ave., Woodbury Hts., N.J. (08097)
1959. Kline, Oram R., Jr., 406 Cooper St., Camden, N.J. (08102)
1948. Klingensmith, Paul O., Suite 305 Wynnewood House, 300 E. Lancaster Ave., Wynnewood, Pa. (19096)
1958. Klingensmith, Walter C., 3600 Spruce St. (19104)
1956. Klinghoffer, June F., The Medical College of Pennsylvania (19129)
1969. Klinghofefr, Leonard, 255 S. 17th St. (19103)
1960. Knopf, Carl L., 2225 Garrett Rd., Drexel Hill, Pa. (19026)
1960. Knorr, John K., 3rd Lankenau Medical Bldg. (19151)
1959. Knowles, Harry J., 722 Righters Mill Rd., Narberth, Pa. (19072)
1969. Koblenzer, Peter J., 303 Chester Ave., Moorestown, N.J. (08057)
1959. Koiwai, Eichi Karl, 235 N. 15th St. (19102)
1957. Koltes, John A., 530 Spring Lane (19128)
1936. Konzelmann, Frank Williamson, 27 W. Wilmont Ave., Somers Point, N.J. (08244)
1949. *Koop, C. Everett, 1740 Bainbridge St. (19146)
1964. Koppel, Max M., 7310 Castor Ave. (19115)

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* S. Weir Mitchell Associate

1952. Kornblueh, Igho H., Welsh Rd. & Verree Rd. (19115)
1971. Kozart, David M., 1930 Chestnut St. (19103)
1941. Krall, J. Thomas, 85 N. Landsdowne Ave., Landsdowne, Pa. (19050)
1954. *Krasnoff, Sidney O., Tabor Medical Bldg., York & Tabor Roads (19141)
1952. *Kravitz, Charles H., 626 Ashbourne Rd., Elkins Park, Pa. (19117)
1964. Kremens, Victor, 5601 N. Broad St. (19141)
1949. Kressler, Robert J., 330 S. 9th St. (19107)
1968. Krishna, Narendra, 584 E. Chestnut St., Coatesville, Pa. (19320)
1947. Kuhlenbeck, Hartwig, 3300 Henry Ave. (19139)
1964. Kustrup, John F., 1418 S. Broad St., Trenton, N.J. (08610)
1967. Kyle, George C., 3400 Spruce St. (19104)
1947. La Boccetta, Alfred Charles, Philadelphia General Hospital, 34th St. & Curie Ave. (19104)
1952. *Lachman, John W., 3401 N. Broad St. (19140)
1946. Lampe, William T., 4207 Tyson Ave. (19135)
1962. Landis, Harry P., Jr., 901 Columbia Ave., Palmyra, N.J. (08065)
1952. *Lang, Warren R., Suite 1624, 1919 Chestnut St. (19103)
1966. Langfitt, Thomas W., 3600 Spruce St. (19104)
1941. Langner, Paul H., Jr., 1208 Edmonds Ave., Drexel Hill, Pa. (19026)
1945. Lansbury, John, 3414 Brae Bourn Drive, Huntingdon Valley, Pa. (19006)
1926. Laws, George M., 1907 Spruce St. (19103)
1967. Lear, Walter J., 206 N. 35th St. (19104)
1950. Learner, Norman, 3701 N. Broad St. (19140)
1920. Leavitt, Frederic Headley, 1527 Pine St. (19102)
1941. Leberman, Paul R., Hospital of the University of Pennsylvania (19104)
1957. Lee, Charles Trumbull, Jr., 33 E. Chestnut Hill Ave. (19118)
1971. Lee, K. Francis, 1025 Walnut St. (19107)
1952. *Lehman, J. Stauffer, 3911 Central Ave., Ocean City, N.J. (08226)
1961. Leibfried, Jane M., 5501 Green St. (19144)
1951. Leivy, Frank E., Wm. Penn House, 1919 Chestnut St. (19103)
1944. Lell, William A., 333 S. 18th St. (19103)
1935. Lemmon, William T., 133 S .36th St. (19104)
1969. Lentz, John W., 417 Lankenau Med. Bldg., Lancaster & City Line Ave. (19151)
1971. Leonard, James R., 1025 Walnut St. (19107)
1965. Leopold, Howard C., Suite C-M1, Cedarbrook Hill Apt. 111, Greenwood Ave. & Limekiln Pike, Wyncote, Pa. (19095)
1955. Leopold, Robert L., Univ. of Pa. Hosp. (19104)
1967. Leslie, W. Munroe, 8800 Germantown Ave. (19118)
1969. Leto, Francesco, 1419 S. Broad St. (19147)
1944. Lettiere, Anthony J., 425 E. State St., Trenton, N.J. (08069)
1970. Leute, Millard S., INA, 1600 Arch St. (19101)
1965. Levenson, Carl, 619 Elkins Ave. (19117)
1959. Levick, Leonard J., 1335 Tabor Rd. (19141)
1971. Levin, Harvey M., 2301 S. Broad St. (19148)
1958. Levine, Samuel, 7100 N. 19th St. (19126)
1964. Levit, Edithe J., 3930 Chestnut St. (19104)
1964. Levit, Samuel M., 1910 Spruce St. (19103)
1958. LeWinn, Edward B., Upper Black Eddy, Pa. (18972)
1960. *Lewis, George C., Jr., 230 N. Broad St. (19102)
1967. Lewis, Stuart H., 2050 W. Chester Ave., Havertown, Pa. (19083)
1967. Liachowitz, Claire H., Graduate Hospital (19146)
1955. Liberman, George E., 1900 Spruce St. (19103)
1971. Lieberman, Daniel, 1127 Walnut St. (19107)
1970. Liebman, Emil P., 2106 Spruce St. (19103)
1968. Lief, Harold I., 2d Floor, 4025 Chestnut St. (19104)
1969. Lightfoot, William P., Temple Univ. Hosp. (19140)

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1956. Likoff, William, 1500 Vine St. (19102)
1962. Lilley, George W., Scott Paper Co. (19113)
1940. Limberger, William A., 301 S. Church St., West Chester, Pa. (19380)
1948. Lin, David Y. P., 2222 S. Broad St. (19145)
1966. Lin, Paul M., The Benson, Suite 123, Jenkintown, Pa. (19046)
1938. Lindauer, M. August, 133 S. 36th St. (19104)
1956. Lindquist, John N., 422 Sabine Ave., Wynnewood, Pa. (19096)
1936. Lintgen, Charles, 1930 Chestnut St. (19103)
1958. Lipshutz, Arthur, 7974 Fayette St. (19119)
1959. *Lipshutz, Herbert, 829 Spruce St. (19107)
1953. Lipsius, Edward I., 319 S. 16th St. (19103)
1959. Little, Ralph B., 111 N. 49th St. (19139)
1944. Livesey, Mary M., 1201 Bethlehem Pike, Flourtown, Pa. (19031)
1907. Lodholz, Edward, The Fairfax, 43rd & Locust Sts. (19104)
1933. Long, Esmond R., Society Hill Towers, 23B, 220 Locust St. (19106)
1951. Long, Joseph P., 1930 Chestnut St. (19103)
1935. Long, William L., 2038 Locust St. (19103)
1931. Longaker, Edwin P., 41 E. Montgomery Ave., Ardmore, Pa. (19003)
1951. Lorber, Stanley H., Temple Univ. Hospital, 3401 N. Broad St. (19140)
1961. Lorry, Ralph W., 1247 E. Luzerne St. (19124)
1960. Lovett, B. Frank, North Park Drive & Airport Highway, Pennsauken, N.J. (08109)
1963. Lubowitz, Richard M., Benson East Apts., Jenkintown, Pa. (19046)
1936. Lucchesi, Pascal Francis, 220 E. Mermaid Lane, House #151 (19118)
1967. Luce, Cyril M., 102 W. Front St., Media, Pa. (19063)
1970. Lucente, Edward R., 1907 S. Broad St. (19148)
1939. Luongo, Romeo A., 2054 Locust St. (19103)
1951. Luscombe, Herbert A., 136 S. 16th St. (19102)
1952. Lutman, Frank C., 33 E. Chestnut Hill Ave. (19118)
1919. Lynch, Frank B., Jr., 809 Cambridge Apts., School House Lane (19144)
1950. Lynch, J. Edward, Mercy Catholic Medical Center, Medical Sciences Bldg., Darby, Pa. (19023)
1953. Lyons, John W., 255 S. 17th St. (19103)
1965. McCabe, James L., Jr., Bryn Mawr Med. Bldg., Bryn Mawr, Pa. (19010)
1932. *McCahey, James F., Wesley Manor, Jacksonville, Fla. (32223)
1958. *McClenahan, John L., 39 East Chestnut Hill Ave. (19118)
1935. McClenahan, William U., 7940 Cherokee St. (19118)
1957. McConnell, Edward L., Jr., 2342 S. Broad St. (19145)
1934. McCouch, Grayson P., R.D. #4, W. Chester, Pa. (19380)
1962. McCracken, Stewart, 3701 N. Broad St. (19140)
1938. McCrea, Lowrain E., 933 Remington Rd., Wynnewood, Pa. (19096)
1958. McCune, Wallace G., 5555 Wissahickon Ave. (19144)
1942. McDonald, P. Robb, Lankenau Medical Bldg. (19151)
1953. McDonnell, William V., West Jersey Hospital, Camden, N.J. (08104)
1952. McElroy, Robert C., 133 S. 36th St. (19104)
1970. McFadden, John F., 102 Wooden Bridge, Holland, Pa. (18966)
1950. McFadden, William M., 1187 E. Washington Lane (19138)
1971. McGarry, Thomas F., 8040 Roosevelt Blvd. (19152)
1949. McGavic, John S., 1104 Montgomery Ave., Rosemont, Pa. (19010)
1970. McGeary, Joseph D., Fidelity Mutual Life Ins. Co., Parkway at Fairmount (19101)
1945. McGee, Lemuel Clyde, Box 3879, Greenville, Wilmington, Del. (19807)
1954. McGehee, Edward H., 33 E. Chestnut Hill Ave. (19118)
1952. McGlade, Thomas H., 514 Cooper St., Camden, N.J. (08102)
1966. McGrath, Raymond J., 1720 Spruce St. (19103)
1933. McLaughlin, James S., 330 S. 9th St. (19107)
1966. McMichael, Harrison, 524 Meadowbrook Circle, Wayne, Pa. (19087)
1924. McMillan, Thomas M., 2451 Mt. Island Drive, North, Mobile, Ala. (36606)

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1955. McStravog, Lawrence J., 5057 Sylvia Rd., Drexel Hill, Pa. (19026)
1954. MacFayden, Bruce V., 1801 J. F. Kennedy Blvd. (19103)
1964. Macht, Elmer L. ,Jr., York & Keith Roads, Abington, Pa. (19001)
1949. MacNeal, Perry Scott, Suite 308, Franklin Medical Bldg., 829 Spruce St. (19107)
1951. MacNeish, W. J., 821 Great Springs Rd., Rosemont, Pa. (19010)
1955. Macy, Dorothy, 5616 N. 45 St., Phoenix, Ariz. (85018)
1957. Madow, Leo, 3300 Henry Ave. (19129)
1970. Magee, John T., Bryn Mawr Hosp., Bryn Mawr, Pa. (19010)
1967. Magee, Joseph H., 330 N. Princeton Ave., Swarthmore, Pa. (19081)
1966. Maguire, Henry C., Jr., Hahnemann Medical College & Hosp. (19102)
1952. Mahoney, J. Francis, 250 S. 18th St. (19103)
1969. Mahood, William H., 1245 Highland Ave., Abington, Pa. (19001)
1970. Maier, Willis P., 3401 N. Broad St. (19140)
1969. Mallin, Aaron W., Rittenhouse Med. Center, 1900 Spruce St. (19103)
1965. Mancall, Elliott L., 230 N. Broad St. (19102)
1959. Mandel, Martin M., Benson Manor, Township Line & Washington Lane, Jenkintown, Pa. (19046)
1968. Mandell, Morton S., 1319 W. Tabor Rd. (19141)
1966. Manges, W. Bosley, 255 S. 17th St. (19103)
1954. Manges, Willis E., Methodist Hospital, Broad & Wolf Sts. (19148)
1971. Manko, Michael A., Lancaster & City Line (19151)
1970. Manley, Donelson R., Wills Eye Hospital (19130)
1949. Manlove, Francis R., 500 Williamson Rd., Gladwyne, Pa. (19035)
1960. Manning, Valentine R., 3336 Aldine St. (19136)
1956. Manstein, George, 1351 Tabor Rd. (19141)
1969. Mansure, Frank T., 4601 Market St. (19139)
1969. Mansure, Patricia R., The Parkway at Fairmont Ave. (19101)
1953. Marbach, A. Herbert, 1307 Tabor Rd. (19141)
1948. *Marden, Philip Ayer, University Hospital, 36th & Spruce Sts. (19104)
1958. Marino, Daniel J., 422 East 22nd St., Chester, Pa. (19013)
1966. Markind, Simon, Albert Einstein Med. Center, York & Tabor Rds. (19141)
1969. Marks, Gerald, 255 S. 17th St. (19103)
1950. Marshall, E. Wayne, 907 Pine St. (19107)
1968. Martin, John H., 3401 N. Broad St. (19140)
1951. * Martin, William L., 402 Holly Lane, Wynnewood, Pa. (19096)
1953. Marx, Halvey E., 76 Brennan Drive, Bryn Mawr, Pa. (19010)
1970. Mason, Daniel, 1500 Vine St. (19102)
1966. Mastroianni, Luigi, Jr., University Hospital (19104)
1968. Mausner, Judith S., The Medical College of Pennsylvania (19129)
1951. Mayock, Robert L., 3600 Spruce St. (19104)
1958. Mays, Ralph Whiteman, 666 E. Penn St. (19144)
1961. Mechanick, Philip, Univ. of Pa. Hosp. (19104)
1951. Medinger, Frederick G., 1941 Woodland Road, Abington, Pa. (190001)
1959. Medoff, Joseph, Two Decker Sq., 22–24 City Ave. & Decker Blvd., Bala-Cynwyd, Pa. (19004)
1941. Mendall, Theodore H., Suite 1603, 1930 Chestnut St. (19103)
1943. Meranze, David R., 229 W. Upsal St. (19119)
1954. Mertens-Roesler, Elizabeth, 2910 Woodpipe Lane (19129)
1955. Mervine, Thomas B., Medical Arts Bldg., Woodbury, N.J. (08096)
1959. Metzger, Harry N., 1815 Pine St. (19103)
1964. Meyer, Edward C., Fitzgerald Mercy Hospital, Darby, Pa. (19023)
1964. Michaile, Kenneth I., 1930 Chestnut St. (19103)
1971. Michon, Catherine A., 702 N. White Horse Pike & Wright Ave., Stratford, N.J. (08084)
1956. Miller, Bernard Joseph, Medical Office Bldg., 666 E. Penn St. (19144)
1939. Miller, Malcolm W., Lankenau Medical Bldg. (19151)
1921. *Miller, T. Grier, 133 S. 36th St. (19104)

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* S. Weir Mitchell Associate.

1955. Miller, William H., Fitzgerald Mercy Hospital, Darby, Pa. (19023)
1952. *Mintz, S. S., 1930 Chestnut St. (19103)
1963. Mishkin, Mark M., Univ. of Pa. Hospital (19104)
1952. Mitchell, Robert McNair, 807 Spruce St. (19107)
1959. *Mitterling, Robert C., Chestnut St. & Glendale Rd., Upper Darby, Pa. (19082)
1967. Monheit, Richard S., Albert Einstein Medical Center, N.D. (19141)
1970. Montgomery, Bruce B., 1930 Chestnut St. (19103)
1936. Montgomery, Hugh, 932 Merion Sq. Rd., Gladwyne, Pa. (19035)
1936. *Montgomery, John B., 1930 Chestnut St. (19103)
1932. Montgomery, Thaddeus L., 2031 Locust St. (19103)
1935. *Moore, John Royal, 3701 N. Broad St. (19140)
1947. Moore, Matthew Thibaud, 1813 Delancey Pl. (19103)
1958. Moore, Samuel R., Jr., 1600 Arch St. (19101)
1958. Morani, Alma D., 3665 Midvale Ave. (19129)
1936. Morgan, David R., Franklin & Thompson St. (19122)
1945. Morris, I. Paul, 1939 W. Cheltenham Ave. (19117)
1969. Morris, Robert G., Jr., 5000 Woodland Ave. (19143)
1967. Moss, N. Henry, N. Medical Bldg., 1335–49 W. Tabor Rd. (19141)
1964. Most, William, 994 Haddon Ave., Collingswood, N.J. (08108)
1971. Moulder, Peter V., 803 Spruce St. (19107)
1959. Moyer, John H., 230 N. Broad St. (19102)
1941. *Mucklé, Craig Wright, 8016 Seminole Ave. (19118)
1929. Mudd, Stuart, V.A. Hosp. (19104)
1960. Mulberger, Robert D., 1930 Chestnut St. (19103)
1965. Muller, Otto, Fitzgerald-Mercy Hospital, Darby, Pa. (19023)
1968. Murphey, Henry S., Henry R. Landis Hosp., Girard and Corinthian Aves. (19130)
1953. Murphy, Edward J., Bryn Mawr Medical Bldg., Bryn Mawr, Pa. (19010)
1958. Murphy, John J., 3600 Spruce St. (19104)
1959. Murray, Edwin N., 130 N. Broadway, Camden, N.J. (08102)
1955. Murtagh, Frederick, Jr., 3401 N. Broad St. (19140)
1951. Myers, David, 3701 N. Broad St. (19140)
1969. Myers, Eugene N., 3701 N. Broad St. (19140)
1965. Myers, Richard N., 307 Lankenau Medical Bldg. (19151)
1955. Nachod, Grace R., 5501 Greene St. (19144)
1968. Naden, Randall S., Jr., 130 N. Broadway, Camden, N.J. (08102)
1968. Nagel, Frank O., Jr., 37 S. 20th St. (19103)
1945. Naide, Meyer, 2034 Spruce St. (19103)
1951. Naidoff, David, 3500 Tudor St. (19136)
1966. Nance, Maurice R., 1500 Spring Garden St. (19101)
1950. Nardone, Anthony A., 912 South 49th St. (19143)
1959. Neal, Hunter S., 460 Lankenau Medical Bldg. (19151)
1963. Nelson, Arthur D., 3400 N. Broad St. (19140)
1943. Nelson, Waldo E., 615 Moreno Rd., Narbeth, Pa. (19072)
1955. *Nemir, Paul Jr., 19th & Lombard Sts. (19146)
1971. Nevyas, Herbert J., 1930 Chestnut St. (19103)
1970. Nicastro, Gennaro C., 3018 N. 25th St. (19132)
1970. Nicholas, Leslie, 255 S. 17th St. (19104)
1970. Nichols, Henry T., 230 N. Broad St. (19102)
1935. *Nicholson, Jesse Thompson, 419 S. 19th St. (19146)
1960. Nicholson, John W., III, 115 Chestnut St., Moorestown, N.J. (08057)
1947. Noone, Ernest L., R.D. #1, Elverson, Chester Co., Pa. (19520)
1954. Norris, Charles M., 3401 N. Broad St. (19140)
1938. *Norris, Robert F., 430 Colebrook Lane, Bryn Mawr, Pa. (19010)
1957. Oakey, Richard S., Jr., 419 E. 22 St., Chester, Pa. (19013)
1971. Oels, Helen C., 3401 N. Broad St. (19140)
1963. O'Hara, A. Edward, Jefferson Medical College Hospital (19107)

* S. Weir Mitchell Associate.

1954. Olsen, Axel K., The Windsor Apts. (19103)
1949. O'Neill, James F., 1425 Woodland Rd., Rydal, Pa. (19046)
1947. Ornstein, A. M., 2007 Delancey Pl. (19103)
1958. O'Sullivan, Ward D., Mercy Cath. Med. Center, Fitzgerald Mercy Hosp., Darby, Pa. (19023)
1955. Ottenberg, Donald J., Eagleville Hosp., Eagleville, Pa. (19408)
1970. Ottenberg, Perry, 111 N. 49th St. (19139)
1961. Owen, Barbara J., Bryn Mawr Hospital, Bryn Mawr, Pa. (19010)
1949. *Padis, Nicholas, Lankenau Medical Bldg. (19151)
1968. Padula, Richard T., 1025 Walnut St. (19107)
1971. Palmer, Louis H., Bryn Mawr Medical Bldg., Bryn Mawr, Pa. (19010)
1963. Parish, Benjamin D., Jr., 1261 Bethlehem Pike, Flourtown, Pa. (19031)
1945. Park, Felix Roman, 1980 Utica Sq., Tulsa, Okla. (74114)
1948. Parkhurst, Leonard Woods, 1329 E. 6th Ave., Tallahassee, Fla. (32303)
1952. Paxson, Newlin F., 245 N. Broad St. (19107)
1932. Payne, Franklin L., 240 Beech Hill Road, Wynnewood, Pa. (19096)
1954. Pearce, Alexander E., 1420 Race St. (19102)
1958. Pearce, Rowan C., Jr., 30 Washington Ave., E-Entry, Haddonfield, N.J. (08033)
1965. Pearlstine, Beatrice, 6719 N. 11th St. (19141)
1954. Pearson, Manuel M., 111 N. 49th St. (19139)
1967. Pechin, Sergius P., 1910 Garrett Rd., Lansdowne, Pa. (19050)
1930. *Pendergrass, Eugene P., Radiology Dept., University Hospital, 3400 Spruce St. (19104)
1953. Penneys, Raymond, 230 N. Broad St. (19102)
1964. Perrin, George M., First Floor Mills Bldg., Philadelphia General Hosiptal, 34th & Curie Ave. (19104)
1940. Pessel, Johannes F., 224 West State St., Trenton, N.J. (08608)
1952. Peters, Michael, Fairhill Rd., Hatfield, Pa. (19440)
1968. Peterson, Arthur L., 111 N. 49th St. (19139)
1961. Peterson, Lysle H., Bockus Research Institute, 19th & Lombard Sts. (19146)
1940. Pettit, Horace, 123 Kennedy Lane, Bryn Mawr, Pa. (19010)
1949. *Pettit, Mary DeWitt, 3300 Henry Ave. (19129)
1946. Pfeiffer, Mildred C. J., 358 Valley Rd., Merion, Pa. (19066)
1935. Phillips, Arthur W., Emlenton, Pa. (16373)
1961. Phillips, William A., Eastern Pennsylvania Psychiatric Institute (19129)
1948. Pierson, Daniel B., Jr., 740 Beacon Lane, Merion, Pa. (19066)
1964. Pierucci, Louis, Jr., Suite 303 Cooper Parkway West, N. Park Drive, Pennsauken, N.J. (08109)
1961. Pike, Anne H., Suite L-11 Stafford House, 5555 Wissahickon Ave. (19144)
1957. *Pilling, George Platt, IV, 2600 N. Lawrence St. (19133)
1933. *Pillsbury, Donald M., Duhring Labs., University Hospital (19104)
1957. Platt, Ruth M., 441 Lyceum Ave. (19128)
1951. Poinsard, Paul J., 2123 Delancey Place (19103)
1968. Polin, Edward B., 7810 Old York Rd. (19117)
1937. Polk, David Stewart, Rosemont, Pa. (19010)
1967. Polk, Lewis D., 500 S. Broad St. (19146)
1956. *Pontarelli, Domenic J., 1037 Great Springs Rd., Rosemont, Pa. (19010)
1953. Porreca, George A., 1843 S. Broad St. (19148)
1932. Porter, Roland De Lance, 3301 N.E. 5th Ave., Apt. 1205, Miami, Florida (33137)
1951. Pote, Harry H., 103 E. Ridley Ave., Ridley Park, Pa. (19078)
1958. Potter, H. Phelps, Jr., Paoli Memorial Hosp., Lincoln Hwy., Paoli, Pa. (19301)
1951. *Pressman, Robert S., 170 W. Olney Ave. (19120)
1965. Price, Joseph J., 36 Copley Road, Upper Darby, Pa. (19082)
1947. Prickett, John A., Warrington, Bucks County, Pa. (18976)
1931. Pryor, Charles Allen, 734 S. Latch's Lane, Merion Station, Pa. (19066)
1968. Qualls, Donald M., Lankenau Medical Bldg. (19151)
1971. Quinn, Norman J., 1218 Valley Rd., Villanova, Pa. (19088)

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1943. *Radbill, Samuel X., 7043 Elmwood Ave. (19142)
1953. Radbill, Sidney G., Wm. Penn House, 1919 Chestnut St. (19103)
1966. Raffensperger, Bruce W., 8811 Germantown Ave. (19118)
1953. Raffensperger, Edward C., 290 St. James Place (19106)
1945. Rakoff, Abraham Edward, Franklin Medical Bldg., 829 Spruce St. (19107)
1953. Ralston, Edgar L., 3400 Spruce St. (19104)
1931. Ramsey, Frank M., Lakeside Dr., Rt. 1, Mayfield, N.Y. (12117)
1968. Randall, Peter, Univ. of Pa. Hosp. (19104)
1953. Ranieri, Tito A., 2320 S. Broad St. (19145)
1941. Rankin, Charles A., Ludlow & Heather Rd., Upper Darby, Pa. (19082)
1968. Rashkind, William L., Children's Hosp. (19146)
1951. *Rathmell, Thomas K., 446 Bellevue Ave., Trenton, N.J. (08618)
1926. *Ravdin, I. S., Univ. of Pa. Hospital (19104)
1969. Rawnsley, Howard M., 3400 Spruce St. (19104)
1962. Raymond, F. Douglas, Jr., Bryn Mawr Medical Bldg., Bryn Mawr, Pa. (19010)
1964. Raymond, Samuel, 711 Maloney Bldg., University Hospital, 36th & Spruce Sts. (19104)
1961. Read, William T., Jr., 110 Munn Lane, Cherry Hill, N.J. (08034)
1954. *Reagan, Lindley B., 601 Chester Ave., Moorestown, N.J. (08057)
1965. Reddy, John B., 330 S. 9th St. (19107)
1960. Reed, Theodore P., Lankenau Medical Bldg. (19151)
1928. Reese, Warren S., 2118 Locust St. (19103)
1971. Reidenberg, Marcus M., 3420 N. Broad St. (19140)
1964. Reinhard, John J., Jr., 335 Woodstown Road, Salem, N.J. (08079)
1956. Reishtein, William A., 16 Bancoyd Rd., Merion Station, Pa. (19066)
1963. Reisinger, Paul B., 855 Berkeley Ave., Trenton, N.J. (08618)
1970. Reivich, Martin, Dept. Neurology, HUP, 3400 Spruce St. (19104)
1969. Relman, Arnold S., 3600 Spruce St. (19104)
1951. Rentschler, Laurence B., 508 Avonwood St., Haverford, Pa. (19041)
1968. Rex, Eugene B., Lankenau Medical Bldg. (19151)
1945. *Rhoads, Jonathan E., Univ. of Pa. Hospital (19104)
1964. Rhoads, Rebecca M. P., 3374 Orange St., Hollywood, Florida (33021)
1963. Rial, William Y., 111 Dartmouth Ave., Swarthmore, Pa. (19081)
1971. Richman, Morton W., 10101 Academy Rd. (19114)
1936. Ritter, Joseph A., 1034 Bryn Mawr Ave., Narbeth, Pa. (19072)
1952. Robbins, Robert, 3401 N. Broad St. (19140)
1954. *Roberts, Brooke, 3400 Spruce St. (19104)
1957. Roberts, Joan Mary, 4 W. Mt. Pleasant Ave. (19119)
1968. Roberts, John M., 8815 Germantown Ave. (19118)
1964. Robinson, James H., 5900 Spruce St. (19139)
1969. Robinson, Nathaniel M., 5229 Spruce St. (19139)
1969. Rodgers, Robert A., Jr., Westwood Med. Center, King's Hwy. & Westwood Dr., Woodbury, N.J. (08096)
1960. Roeder, Paul H., Haverford Ave. & Westwood Lane, Overbrook Hills, Pa. (19051)
1969. Roediger, Paul M., 1245 Highland Ave., Abington, Pa. (19001)
1955. *Rogers, Fred B., 3401 N. Broad St. (19140)
1971. Rominger, C. Jules, Radiology Dept., 5301 Cedar Ave. (19143)
1951. *Ronis, Bernard J., 2106 Spruce St. (19103)
1971. Ronis, Max Lee, 2106 Spruce St. (19103)
1971. Root, Allen W., York and Tabor Rd. (19141)
1971. Rorke, Lucy B., 120 Chestnut St., Moorestown, N.J. (08057)
1969. Rosato, Francis E., 3400 Spruce St. (19104)
1948. Roscoe, Constantine R., 7226 Castor Ave. (19124)
1928. Rose, Edward, 426 Owen Rd., Wynnewood, Pa. (19096)
1936. Rose, Elizabeth Kirk, 426 Owen Rd., Wynnewood, Pa. (19096)
1959. Rose, Isadore, 6000 W. Oxford St. (19151)
1965. Rosenberg, Hyman, 1555 Haddon Ave., Camden, N.J. (08103)

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1946. *Rosemond, George Parrott, 3401 N. Broad St. (19140)
1960. Rosenow, Edward C., Jr., American College of Physicians, 4200 Pine St. (19104)
1948. Rothman, Maurice M., Kennedy House, Apt. 2504, 19th & J. F. Kennedy Blvd. (19103)
1951. Rouse, George P., Jr. 2031 Locust St. (19103)
1966. Rovner, Harold, 1427 Spruce St. (19102)
1969. Rowland, Lewis P., G50 Administration Bldg., 3400 Spruce St. (19104)
1952. Roxby, Bruce S., Temple Univ. Health Services, Broad and Montgomery (19122)
1955. Roxby, John B., Jr., 215 Vassar Ave., Swarthmore, Pa. (19081)
1949. Royster, Henry P., 888 Glenbrook Ave., Bryn Mawr, Pa. (19010)
1959. Rubin, Alan, 1905 Spruce St. (19103)
1952. Rubin, I. Edward, 255 S. 17th St. (19103)
1966. Rugart, Karl F., 811 Spruce St. (19107)
1947. Rush, Alexander, 330 S. 9th St. (19107)
1971. Rutberg, Franklin L., Stafford House, Wissahickon & Cheltenham Ave. (19144)
1963. Rutter, William A., 425 Wister Rd., Wynnewood, Pa. (19096)
1963. Ryan, James J., Suite 2, 7516 City Line Ave. (19151)
1945. Rynes, Samuel E., 334 S. 21st St. (19103)
1965. Sachs, Marvin L., 3400 Spruce St. (19104)
1952. Sain, Fletcher D., 1245 Highland Ave., Abington, Pa. (19001)
1970. Salim, Bozorgmehr, 651 Shellbank Lane, Rosemont, Pa. (19010)
1952. Salner, Nathan P., 6812 Castor Ave. (19124)
1952. Saltzman, Maurice, 2037 Spruce St. (19103)
1966. Samitz, M. H., 1715 Pine St. (19103)
1944. Sampson, David Alan, 726 Braeburn Lane, Penn Valley, Narbeth, Pa. (19072)
1964. Santangelo, Samuel C., 1941 Woodland Road, Abington, Pa. (19001)
1968. Sarin, Lov K., Lankenau Med. Bldg. (19151)
1950. Sarner, Joseph B., 289 Locust St. (19106)
1967. Sattilaro, Anthony J., Methodist Hospital (19148)
1954. Savacool, J. Woodrow, 146 W. Tulpehocken St. (19144)
1947. Sayen, John J., 3600 Spruce St. (19104)
1969. Schaedler, Russell W., Jefferson Med. College (19107)
1971. Schamberg, Ira L., 7852 Montgomery Ave. (19117)
1942. *Scheie, Harold G., 3400 Spruce St. (19104)
1929. Schenck, Harry P., 1235 Wyngate Rd., Wynnewood, Pa. (19096)
1966. Schless, Guy L., 330 South Ninth St. (19107)
1945. Schlezinger, Nathan S., 255 S. 17th St. (19103)
1961. Schlosser, Woodrow D., 3701 N. Broad St. (19140)
1971. Schmidt, William C., 223 Lancaster Ave., Devon, Pa. (19333)
1958. Schnabel, Truman G., Jr., Phila. General Hospital (19104)
1957. Schnall, Nathan, 2037 Pine St. (19103)
1962. Schneider, Henry C., 4801 Penn St. (19124)
1966. Schoenberg, Harry W., 3400 Spruce St. (19104)
1970. Schott, Clifford E., Jr., Misericordia Hosp. (19143)
1968. Schotz, Seymour, 51 N. 39th St. (19104)
1955. Schreader, Charles J., 8906 Atlantic Ave., Margate City, N.J. (08402)
1952. Schulz, Norbert J., 106 W. Front St., Media, Pa. (19063)
1950. Schumann, Francis, 8811 Germantown Ave. (19118)
1971. Schwartz, Gordon F., 1025 Walnut St. (19107)
1948. Schwarz, Gabriel A., 133 S. 36th St. (19104)
1962. Schwarz, Henry P., Philadelphia General Hospital (19104)
1955. Schwegman, Cletus W., Hospital of the University of Penna. (19104)
1966. Scott, J. Clifford, RFD #2, Box 215, Malvern, Pa. (19355)
1930. Scott, John Porter, Children's Hospital, 1740 Bainbridge St. (19146)
1950. Scott, Michael, 3401 N. Broad St. (19140)
1940. Scott, T. F. McNair, Children's Hospital, 1740 Bainbridge St. (19146)
1952. Seifer, Arthur F., 710 South Main St., Phoenixville, Pa. (19460)

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1958. Sellers, Alfred M., Hosp. of the Univ. of Pa. (19104)
1968. Senior, John R., 54 Merbrook Lane, Merion Station, Pa. (19066)
1969. Sewell, Edward M., Director, Health Services, 21 & Race Sts. (19103)
1967. Seyler, Raymond Q., 1600 Arch St. (19101)
1960. *Shannon, Gerard M., 8118 Bustleton Ave. (19115)
1963. Sharples, Wynne, 454 S. Ithan Ave., Villanova, Pa. (19085)
1956. Shaw, Daniel L., Jr., 702 Knox Rd., Villanova, Pa. (19085)
1963. *Shearburn, Edwin W., 306 Lankenau Medical Bldg. (19151)
1955. Schechter, Fred R., 2461 No. 54th St. (19131)
1954. Shelley, Walter B., 36th & Spruce Sts. (19104)
1955. Shenkin, Henry A., Episcopal Hospital (19125)
1968. Sherk, Henry H., 330 S. Ninth St. (19107)
1968. Sherry, Sol, Temple Univ. Health Center (19140)
1956. Sherson, Jacob S., 405 Meadow Lane, Merion Station, Pa. (19066)
1958. Shipps, Hammell P., Route 130 & New Albany Rd., Cinnaminson, N.J. (08077)
1957. Shope, Edward Pierce Lentz, 807 Wilson Bldg., Camden, N.J. (08102)
1946. Shoup, George Daniel, 121 W. Walnut Lane (19144)
1955. *Shubin, Harry, 1829 Pine St. (19103)
1952. Shuman, Charles R., 3401 N. Broad St. (19140)
1949. Sidlick, David M., Park Towne Place E., 2200 Benj. Franklin Pkwy. (19130)
1969. Silberberg, Donald H., Univ. of Pa. Hosp. (19104)
1941. *Silcox, Louis E., Lankenau Medical Bldg. (19151)
1956. *Sillars, Charles H., Abington Memorial Hospital, Abington, Pa. (19001)
1968. Silverio, John, Wyeth Labs., P. O. Box 8299 (19101)
1955. Silverstein, Alexander, 1829 Pine St. (19103)
1971. Silverstein, Herbert, 3701 N. Broad St. (19140)
1967. Simenhoff, Michael L., 1205 Walnut St. (19107)
1961. Simmons, Vaughan P., The Fidelity Mutual Life Insurance Co. (19101)
1954. Singmaster, Lawrence, 272 Cheswold Lane, Haverford, Pa. (19041)
1952. Skromak, Stanley J., 5108 Torresdale Ave. (19124)
1969. Skversky, Norman J., 6810 Castor Ave. (19149)
1968. Slate, William G., PO Box 1951, Wilmington, Del. (19899)
1967. Sloane, Norman G., 255 S. 17th St. (19103)
1929. Smith, Austin T., 330 S. 9th St. (19107)
1964. Smith, Edgar C., 7100 Marshall Road, Upper Darby, Pa. (19082)
1967. Smith, Kaighn, Lankenau Medical Bldg. (19151)
1933. Smith, Lauren Howe, 111 N. 49th St. (19139)
1952. Smith, Richard T., 330 S. 49th St. (19107)
1967. Smith, Robert R., William H. Rorer, Inc., 500 Virginia Drive, Fort Washington, Pa. (19034)
1964. Smyth, Murray G., Jr., 1710 Delancey Place (19103)
1968. Snagg, William T., Cooper Hospital, Camden, N.J. (08103)
1951. Snape, William J., Cooper Hosp., Medical Arts Bldg., 5th Floor, 300 Stevens St., Camden, N.J. (08103)
1966. Snow, Laurence H., 3300 Henry Ave. (19129)
1958. Sodeman, William A., Suite 620, 116 S. 7th St. (19106)
1961. Soffe, Alvin M., 1930 Chestnut St. (19103)
1935. Sokoloff, Martin J., 255 S. 17th St. (19103)
1971. Solit, Robert W., 829 Spruce St. (19107)
1964. Soll, David B., 5001 Frankford Ave. (19124)
1940. Soloff, Louis A., 3401 N. Broad St. (19140)
1944. Sommer, George N. J., Jr., 120 W. State St., Trenton, N.J. (08608)
1952. Sones, Maurice, Mt. Airy Medical Bldg. (19119)
1951. Sonneborn, Duane G., 1200 W. Erie Ave. (19124)
1928. *Spaeth, Edmund B., 1930 Chestnut St. (19103)
1966. Spaeth, George L., 1601 Spring Garden St. (19130)

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1958. Spaeth, Philip G., 1930 Chestnut St. (19103)
1971. Spagna, Paschal M., Front & Lehigh Ave. (19125)
1937. Spangler, John Luther, 429 Montgomery Ave., Haverford, Pa. (19041)
1935. Spiegel, Ernest A., 6807 Lawnton Ave. (19126)
1961. *Spiegelman, Jay, Benson East Apt., Jenkintown, Pa. (19146)
1955. Spitz, Eugene B., 40–50 W. Front St., Media, Pa. (19063)
1958. Splendido, Joseph A., 608 W. Cliveden (19119)
1961. Stahlgren, LeRoy H., Episcopal Hospital, Front & Lehigh Ave. (19125)
1960. Stainback, William C., Bryn Mawr Medical Bldg., Bryn Mawr, Pa. (19010)
1957. Stanley, Robert C. G., 2315 Edgemont Rd., Chester, Pa. (19013)
1968. Stapinski, Stanley M., 80 W. Main St., Glen Lyon, Pa. (18617)
1927. Starr, Isaac, 505 Chesheim Valley Rd. (19118)
1952. Stayman, Joseph W., Jr., 8815 Germantown Ave. (19118)
1945. Stecher, H. Armin, 1510 Darby Rd., Havertown, Pa. (19083)
1955. Steel, Howard H., 1526 Mt. Pleasant Rd., Villanova, Pa. (19085)
1964. Stein, Donald B., Jr., 3000 Robin Lane, Havertown, Pa. (19083)
1946. Stein, Irvin, 1936 Spruce St. (19103)
1966. Stein, Joseph M., 1507 Landmark One, Cherry Hill, N. J. (08034)
1953. Stein, Raymond O., 269 S. 19th St. (19103)
1966. Stein, Samuel C., 1930 Chestnut St. (19103)
1968. Steinmetz, Charles G., III, 4606 Spruce St. (19139)
1951. Sterling, Julian A., 3505 S. Ocean Drive, Hollywood, Fla. (33020)
1948. Stevens, Lloyd W., Presbyterian-Univ. of Pa. Med. Center Bldg. 301, 3910 Powelton Ave. (19104)
1969. Stewart, W. Wayne, 1608 Walnut St. (19103)
1943. Stokes, S. Emlen, 129 Chester Ave., Moorestown, N.J. (08057)
1967. Stool, Sylvan E., 1740 Bainbridge St. (19146)
1968. Storey, Patrick B., 1505 Race St. (19102)
1961. Strang, John E., 864 County Line Rd., Bryn Mawr, Pa. (19010)
1953. Strawbridge, Rendall R., Lankenau Medical Bldg. (19151)
1953. Stroud, Morris W., 1175 Birmingham Rd., RD #5, West Chester, Pa. (19380)
1960. *Strumia, Paul V., Bryn Mawr Hospital, Bryn Mawr, Pa. (19010)
1971. Stumpe, Alfred R., 3930 Chestnut St. (19104)
1967. Stunkard, Albert J., Univ. of Pennsylvania (19104)
1951. *Sturgis, Katharine Boucot, 349 Wister Rd., Wynnewood, Pa. (19096)
1927. Sturgis, Samuel Booth, 349 Wister Rd., Wynnewood, Pa. (19096)
1971. Sugiura, Henry T., 51 N. 39th St. (19104)
1966. *Sullivan, Howard E., Jr., Bryn Mawr Medical Bldg., Bryn Mawr, Pa. (19010)
1930. Sunderman, F. William, 1833 Delancey Place (19103)
1954. *Sussman, Marcel S., Wm. Penn House, 1919 Chestnut St. (19103)
1963. Sutliff, Frederick P., Rm. 202–3, Bryn Mawr Med. Bldg., Bryn Mawr, Pa. (19010)
1965. Sutnick, Alton I., 2135 St. James Place (19103)
1965. Swartley, Robert N., 119 E. Webster St., Colusa, Calif. (95932)
1968. Sweeney, Francis J., Jr., Jefferson Med. College (19107)
1971. Syms, Charles A., 1246 E. Cheltenham Ave. (19124)
1952. Talbot, Timothy R., Jr., 204 Booth Lane, Haverford, Pa. (19041)
1963. Tassman, William S., 187 E. Evergreen Ave. (19118)
1946. Tauber, Robert, 1600 Providence Blvd., Daltona, Florida (32763)
1952. Taylor, Ann Gray, 6364 Germantown Ave. (19144)
1960. Taylor, Daniel B., 2241 Federal St. (19146)
1965. Taylor, Richard C., Reddington Fairview Hosp., Skowhegan, Maine (04976)
1969. Taylor, W. J. Russell, PGH, 34th and Curie Ave. (19104)
1956. Templeton, John Y., III, 829 Spruce St. (19107)
1966. Teplick, Joseph G., 419 N. Sterling Rd. (19117)
1966. Terry, Luther L., 121 College Hall, Univ. of Pennsylvania (19104)
1951. Theodos, Peter A., 1930 Chestnut St. (19103)

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1961. Therman, Per-Olof, 111 N. 49th St. (19139)
1970. Thier, Samuel O., Rm. 570 Maloney Bldg., HUP, 3400 Spruce St. (19104)
1959. Thomas, Arthur H., 5240 Vine St. (19139)
1946. Thomas, Carmen C., 1930 Chestnut St. (19103)
1964. Thomas, John W., 5900 Spruce St. (19139)
1970. Thompkins, Leonard J., Miscericordia Hosp. (19143)
1952. Thompson, Charles M., 428 Penn Valley Rd., Narberth, Pa. (19072)
1971. Thompson, Hartwell G., HUP, 3400 Spruce St. (19104)
1927. Thorington, J. Monroe, Cambridge Apts., Wissahickon Ave. & School House Lane (19144)
1967. Thorwarth, William T., 8835 Germantown Ave. (19118)
1971. Tillman, Joseph M., Jr., 434 Lindley Avenue (19120)
1954. Tindall, Dorothy D., 1930 Rittenhouse Sq. (19103)
1966. Toland, Joseph J., N.E. Med. Center, Roosevelt Blvd. & Welsh Rd. (19114)
1935. Toland, Owen J., 336 Aubrey Rd., Wynnewood, Pa. (19096)
1952. *Tondreau, Roderick L., 523 Old Gulph Rd., Bryn Mawr, Pa. (19010)
1971. Torg, Joseph S., 3401 N. Broad St. (19140)
1949. Tornay, Anthony S., 2038 Locust St. (19103)
1966. Torrance, Edward G., 678 Burmont Rd., Drexel Hill, Pa. (19026)
1968. Tourtellotte, Charles D., 3400 N. Broad St. (19140)
1936. Towson, Charles Emory, 224 W. Washington Lane (19144)
1955. Trimpi, Howard D., 501 N. 17th St., Allentown, Pa. (18104)
1954. Trommer, Philip R., 258 S. 18th St. (19103)
1956. Troncelliti, Mario V., Pennsylvania Hospital (19107)
1953. Tropea, Frank, Jr., 500 Mulberry Lane, Haverford, Pa. (19041)
1947. Trueman, Robert H., 2101 Chestnut St. (19103)
1954. Truitt, R. Marshall, Jr., 6400 Wissahickon Ave. (19119)
1971. Tucker, John A., HUP, 3400 Spruce St. (19104)
1966. Tucker, Gabriel F., Jr., 3401 N. Broad St. (19140)
1959. Tuddenham, William J., Pennsylvania Hospital (19107)
1938. Tuft, Louis, 1530 Locust St. (19102)
1964. Tulsky, Emanuel G., Abington Memorial Hospital, Abington, Pa. (19001)
1933. *Tumen, Henry J., 1830 Rittenhouse Square (19103)
1938. Turman, Christopher M., 1245 Highland Ave., Abington, Pa. (19001)
1959. Tyson, R. Robert, 3401 N. Broad St. (19140)
1953. Ulin, Alexander W., 230 N. Broad St. (19102)
1970. Urbach, Frederick, 3322 N. Broad St. (19140)
1960. Uricchio, Joseph F., 245 N. Broad St. (19107)
1950. Valdes-Dapena, Antonio, 214 Plush Mill Rd., Wallingford, Pa. (19086)
1958. Van den Noort, Gordon, 1245 Highland Ave., Abington, Pa. (19001)
1937. *Vander Veer, Joseph B., 106 Bryn Mawr Med. Bldg., Bryn Mawr, Pa. (19010)
1937. Van Loon, Emily Lois, 4705 Disston St. (19135)
1960. Van Meter, Ralph H., 244 W. Main St., Moorestown, N.J. (08057)
1933. *Vastine, Jacob H., 2nd, 267 Kent Rd., Wynnewood, Pa. (19096)
1967. Vaughan, Victor C., III, 2600 N. Lawrence St. (19133)
1963. Vaughan, Arthur R., Jr., 5329 Rising Sun Ave. (19120)
1958. Velkoff, Cyril L., 2100 Walnut St. (19103)
1965. Viggiano, Louis X., 528 Brandymede Place, Rosemont, Pa. (19010)
1952. Vischer, Thomas J., 5903 Green St. (19144)
1940. Voegelin, Adrian W., Suite 108, 5735 Ridge Ave. (19128)
1960. Wagenheim, Harry H., Apt. 1A9, 2401 Pennsylvania Ave. (19130)
1949. Wagner, Frederick B., Jr., 800 Chauncey Road, Narbeth, Pa. (19072)
1949. Wagner, Joseph A., 201 Highland Ave., Bryn Mawr, Pa. (19010)
1938. Waldman, Joseph, 404 Meadowbrook Lane (19118)
1955. Waldron, Jerome M., Evergreen Towers, 8900 Roosevelt Blvd. (19115)
1971. Walker, Barry R., 51 N. 39th St. (19104)

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1967. Waltzer, Frederick N., York & Keith Rds., Abington, Pa. (19001)
1969. Waugh, Bascom S., 1882 S. 10th St., Camden, N.J. (08104).
1967. Wear, Roland F., Jr., Campbell Soup Co., 375 Memorial Ave., Camden, N.J. (08101)
1952. Weaver, Harry S., Jr., Room 405, 1930 Chestnut St. (19103)
1969. Weibel, Robert E., 1001 Pennsylvania Ave., Havertown, Pa. (19083)
1952. Weinstein, George L., 255 S. 17th St. (19103)
1950. Weiss, Sidney, 2037 Locust St. (19103)
1965. Weiss, William, Philadelphia General Hospital, 34th & Curie Ave. (19104)
1959. Wellenbach, Burton L., 1930 Chestnut St. (19108)
1951. *Welty, John W., Montgomery Ave. & Owen Rd., Wynnewood, Pa. (19096)
1955. Wendkos, Martin H., Black Hawk Apts., L-16, Lancaster Ave., Dowington, Pa. (19335)
1962. Wentz, Clarkson, 51 N. 39 St. (19104)
1959. West, Clifton F., Jr., 406 Lankenau Medical Bldg. (19151)
1960. Whiteley, William H., 1015 Chestnut St. (19107)
1969. Whitman, Mark A., 5555 Wissahickon Ave. (19144)
1954. Wieder, Henry S., Jr., 829 Spruce St. (19107)
1939. *Willauer, George, 6129 Greene St. (19144)
1969. Williams, James R., 5000 Woodland Ave. (19143)
1937. *Williams, John C., 512 Auburn Ave., Wyndmoor, Pa. (19118)
1965. Williams, Kirkley R., Bryn Mawr Bldg., Bryn Mawr, Pa. (19010)
1968. Williams, Norman, Jefferson Med. College (19107)
1950. Williams, R. G., 421 Kirk Lane, Media, Pa. (19063)
1927. Williamson, Ernest G., 6353 Woodbine Ave. (19151)
1945. Wilson, John F., 2013 Delancey Place (19103)
1949. Wilson, William W., 561 Fairthorne Ave. (19128)
1971. Winegrad, Albert I., Cox Institute, Hosp. Univ. Penna. (19104)
1957. Winkleman, N. William, Jr., 4141 Apalogen Rd. (19144)
1963. Winston, Joseph M., Jeanes Hospital (19111)
1966. Wise, John S., 433 Bellevue Ave., Trenton, N.J. (08618)
1961. Wise, Robert I., 1025 Walnut St. (19107)
1968. Witkowski, Joseph A., 3501 Ryan Ave. (19136)
1953. Wohl, George T. Lankenau Hospital (19151)
1958. Woldow, Irving, Einstein Med. Center, York & Tabor Rds. (19141)
1958. Wolf, John H., 124 Walnut Lane (19144)
1944. Wolf, Lewis R., 3474 Frankford Ave. (19134)
1962. Wolferth, Charles C., Jr., 230 N. Broad St. (19102)
1964. Wolfson, Robert J., 3701 N. Broad St. (19140)
1964. *Wolgin, William, 1512 Spruce St. (19102)
1957. Wolkowicz, Michael I., 2022 Spruce St. (19103)
1942. Wolman, Irving J., 7607 Woodlawn Ave. (19126)
1966. Wood, Alfred C., Jr., 6386 Church Rd. (19151)
1932. *Wood, Francis C., 3400 Spruce St. (19104)
1944. Wood, H. Curtis, Jr., 7010 Lafayette Ave., Fort Washington, Pa. (19034)
1966. Wood, Margaret G., 3400 Spruce St. (19104)
1953. *Woodruff, Marston T., 4940 Penn St. (19124)
1969. Wouters, Freerk W., Suite 713, 1530 Chestnut St. (19102)
1960. Wurzel, Harold A., 3400 Spruce St. (19104)
1969. Yanoff, Myron, 3400 Spruce St. (19104)
1964. Young, Alma L., 3343 W. Penn St. (19129)
1966. Young, Irving, Albert Einstein Medical Center, N.D. (19141)
1967. Zakreski, Matthew J., 8815 Germantown Ave. (19118)
1961. Zanni, Anthony L., 111 N. 49th St. (19139)
1957. Zaslow, Jerry, 6735 Harbison Ave. (19149)
1955. Zatuchini, Jacob, Heart Station, PM Bldg., Episcopal Hosp. (19125)
1946. Zeigerman, Joseph H., 2105 Spruce St. (19103)
1970. Zimmermann, Albert W., Jr., 635 Germantown Pike, Norristown, Pa. (19401)

* S. Weir Mitchell Associate.

1968. Zimskind, Paul D., Jefferson Med. College (19107)
1949. Zintl, William J., 1016 Warrior Rd., Drexel Hill, Pa. (19026)
1956. Ziserman, Abraham J., 2046 Pine St. (19103)
1962. Zubrow, Sidney N., 829 Spruce St. (19107)
1933. Zulick, J. Donald, 307 Fisher Rd., Jenkintown, Pa. (19046)
1965. Zweiman, Burton, Univ. of Pa. Hospital (19104)

Non-Resident Fellows

ELECTED

1960. Ainsworth, Thomas H., Jr., 840 N. Lake Shore Drive, Chicago, Ill. (60611)
1936. Alexander, Fay K., Lincolnville, Maine (04849)
1941. Aronson, Roland S., 9401 Byeforde Road, Kensington, Md. (20795)
1971. Astley, M. Royden C., 3811 O'Hara St., Pittsburgh, Pa. (15206)
1954. Austin, George M., Loma Linda Univ. Med. Sch. Hosp., Loma Linda, Calif. (92354)
1942. Bachman, Carl, 1824 Camino Verde Apt. A, Walnut Creek, Calif. (94596)
1958. Ballinger, Walter F., II, Washington Univ. Sch. of Med., 4960 Audubon Ave., St. Louis, Mo. (63110)
1966. Baue, Arthur E., The Jewish Hosp. of St. Louis, 216 S. Kingshighway, St. Louis, Mo. (63110)
1955. Beckfield, William J., Luther Hospital, 310 Chestnut St., Eau Claire, Wisconsin (54701)
1949. *Beecham, Clayton T., Geisinger Medical Center, Danville, Pa. (17821)
1932. Behney, Charles A., P. O. Box 4256, San Jose Branch, Bisbee, Arizona (85603)
1968. Benenson, Abram S., Univ. of Kentucky College of Med., Lexington, Ky. (40506)
1970. Berry, Robert E., Bellevue at Jefferson St., Roanoke, Va. (24014)
1955. Blank, Harvey, P.O. Box 4875, Miami, Florida (33152)
1921. Borzell, Francis F., R. D. 4, Box 4310, Browns Mills, N.J. (08015)
1937. Braceland, Francis J., The Institute of Living, 200 Retreat Ave., Hartford, Conn. (06103)
1936. Brown, Clark E., S. Pamet Rd., Truro, Mass (02666)
1948. Brown, Robert B., Box 62, Kill Devil Hills, N.C. (27948)
1952. Bumgardner, Heath D., 13 S. Main St., Cape May Court House, N.J. (08210)
1953. Burbridge, J. Raymond, 163 Nassau St., Princeton, N.J. (08540)
1962. Burney, Leroy E., 40 Wall St., N.Y., N.Y. (10005)
1931. Cantarow, Abraham, Bldg. 31, Rm. 10A-49, Nat'l. Cancer Institute, NIH, Bethesda, Md. (20014)
1948. Chapman, John P., Calle Fray Junipero Serra 26, Palma de Mallorca, Balearic Islands, Spain
1950. Chapple, Charles C., 8517 Indian Hills Drive, Omaha, Neb. (68114)
1941. Cheleden, John, 1012 Volusia Ave., Daytona Beach, Fla. (32014)
1930. Clarke, Francis Mann, 116 New St., New Brunswick, N.J. (08901)
1926. Clerf, Louis H., 5575-8th Ave., North St., Petersburg, Fla. (33705)
1964. Cohen, Sheldon G., 309 S. Franklin St., Wilkes-Barre, Pa. (18702)
1969. Collins, James A., Geisinger Med. Center, Danville, Pa. (17821)
1968. Cortes, Felix M., Calle Monserrate E-10, Quintas de la Monserrate Ponce, Puerto Rico (00731)
1959. Cowan, John S., AMA Med. Educational Project, APO San Francisco (96243)
1960. Cowley, Allen W., Sr., 1919 N. Front St., Harrisburg, Pa. (17102)
1967. Cox, J. William, 2906 N. Kensington St., Arlington, Va. (22207)
1937. Crane, Martin P., 310 E. 16th St., Ocean City, N.J. (08226)
1941. Cuttle, Tracy D., 198 Kimberlin Hts. Drive, Oakland, Calif. (94619)
1959. Dannenberg, Arthur M., Jr., Johns Hopkins School of Hygiene, 615 N. Wolfe St., Baltimore, Md. (21205)
1937. Davis, Perk Lee, 419 S.E. Third St., Deerfield Beach, Florida (33441)
1947. Dehne, Theodore L., Lake Paupac Club, Greentown, Pa. (18426)

* S. Weir Mitchell Associate.

1954. Deitrick, John E., 69 Rockledge Rd., Bronxville, N.Y. (10708)
1965. Delaney, William E., III, St. Vincent's Hosp., 170 W. 12th St., N.Y.C. (10011)
1968. Denton, Robert, Univ. Calif. Med. Sch., Davis, Calif. (95616)
1941. Dixon, Harold M., R.D. #3, Cool Springs Rd., Indiana, Pa. (15701)
1961. Duane, Thomas D., Bedminster, Pa. (18910)
1959. Durgin, Bernice Elise, 221 N. Allegheny St., Bellefont, Pa. (16823)
1947. Durkin, John K., V.A. Hospital, Coatesville, Pa. (19320)
1955. Edwards, Margaret Hay, 800 4th St., S.W., Washington, D.C. (20024)
1953. Eisenberg, Isadore J., 2806 Green St., Harrisburg, Pa. (17110)
1951. Ellis, Mackinnon, Kelkinny, RFD #4, Jonesboro, Tenn. (37659)
1957.** Errion, Arthur Robbins, 359 Essex St., Salem, Mass. (01970)
1951. Ervin, Carl E., 1525 Cedar Cliff Dr., Camp Hill, Pa. (17011)
1952. Flinn, Lewis B., 1306 Broom St., Wilmington, Del. (19806)
1940. Forrester, James S., Harrisburg Polyclinic Hospital, Harrisburg, Pa. (17105)
1968. Frankl, William S., 121 Cornell Lane, St. Davids, Pa. (19087)
1964. French, Gordon N., Box 205, Waterville Valley, N.H. (03223)
1940. Fry, Kenneth E., 621 University St., Walla Walla, Washington (99362)
1947. Gaskill, Herbert S., 480 S. Marion St., Denver, Colo. (80209)
1931. Gilman, Robert Louis, Cheyney, Pa. (19319)
1968. Glenney, Wilton R., 218 W. Market St., Pottsville, Pa. (17901)
1954. Godfrey, Ellwood W., Princeton Hospital, Princeton, N.J. (08540)
1928. Gordon, Burgess L., 1550 Lake Shore Dr., Chicago, Illinois (60610)
1955. Greenstein, Raphael H., 1514 Palmer Drive, Blocksburg, Va. (24060)
1952. Grieco, Reynold M., 2 W. 4th St., Williamsport, Pa. (17701)
1934. Griffith, John Q., Jr., 6 North Fredericksburg Ave., Margate, N.J. (08402)
1952. Gross, Elmer R., 1102 West St., Wilmington, Del. (19801)
1933. Gruber, Charles M., 1313 College Ave., Redlands, Calif. (92373)
1951. Hafkenschiel, Joseph H., Jr., 380 Golden Oak Drive, Portola Valley, Calif. (94025)
1935. Haines, Harlan F., 231 N. Pine St., Seaford, Del. (19973)
1939. Hamblock, Leonard C., 617 Fair Winds Drive, Fair Winds Condominium, Nokomis, Florida (33555)
1959. Hampton, Louis J., 300 Highland Ave., Hanover, Pa. (17331)
1969. Hanson, Stephen M., Coatesville Hosp., Coatesville, Pa. (19320)
1969. Harrell, George T., Jr., 500 University Dr., Hershey, Pa. (17033)
1966. Harrington, Edwin D., 720 Stanwick Rd., Moorestown, N.J. (18057)
1955. Harris, John H., 1301-A N. Second St., Harrisburg, Pa. (17102)
1965. Harris, John H., Jr., Carlisle Hospital, Carlisle, Pa. (17013)
1936. Hatch, Lerleen Clement, 7546 E. Mariposa Dr., Scottsdale, Ariz. (85251)
1928. Hayman, Joseph M., Jr., 3504 E. Scarborough Rd., Cleveland Hts., Ohio (44118)
1964. Heath, Robert D., The Geisinger Med. Center, Danville, Pa. (17821)
1946. Hendrickson, Frank O., 108 Norfolk Rd., Jupiter, Florida (33458)
1955. Hills, Arthur G., 3757 Carmen St., Coconut Grove, Miami, Florida (33133)
1933. Hitzrot, Lewis H., 161 Patton Ave., Princeton, N.J. (08540)
1939. Hodes, Philip J., 1700 N.W. 10th Ave., Miami, Fla. (33136)
1969. Hollender, Marc H., Vanderbilt Univ. Hosp., Nashville, Tenn. (37203)
1950. Horn, Robert C., Henry Ford Hospital, Detroit, Mich. (48202)
1953. Imber, Irving, 428 Walnut St., Reading, Pa. (19601)
1958. Impink, Robert R., 405 Oley St., Reading, Pa. (19601)
1935. Ingleby, Helen, The Church House, Heacham, King's Lynn, England
1960. Jenson, William K., Desert Hosp., 1151 N. Via Miraleste, Palm Springs, Calif. (92262)
1952. Jonas, Karl C., 916 19th St., N.W., Washington, D.C. (20006)
1955. Jordan, Claus G., 175 E. Brown St., E. Stroudsburg, Pa. (18301)
1957. Kane, Sydney H., 88 Valley Rd., Berkeley Hts., N.J. (07922)
1956. Keffer, William H., 413 Oley St., Reading, Pa. (19601)
1947. Kelchner, Clyde H., 1125 Turner St., Allentown, Pa. (18102)

** Military Service.

1969. *Kitchen, James G., II, The Mohican, Pocono Lake, Pa. (18347)
1954. LaMotte, William O., Jr., 1303 Delaware Ave., Wilmington, Del. (19806)
1963. Lang, Leonard P., Memorial Div., Wilmington Med. Center, PO Box 1548, Wilmington, Del. (19899)
1936. Leaman, William G., Jr., P. O. Box 463, Unionville, Pa. (19375)
1943. Leopold, Irving H., The Mount Sinai Hospital, 100th St. & 5th Ave., New York, N.Y. (10029)
1952. Levan, John B., 401 Oley St., Reading, Pa. (19601)
1960. Lewis, David H., Torild Wulffsgatan 37, 413 19 Goteborg, Sweden
1964. Leymaster, Glen R., AMA, 535 N. Dearborn St., Chicago, Ill. (60610)
1949. Lhamon, William T., The New York Hospital, 525 E. 68th St., New York, N.Y. (10021)
1954. Light, John J. B., 25 N. 9th St., Lebanon, Pa. (17042)
1954. Lindenmuth, Woodrow W., Yale-New Haven Hosp., PO Box 1001, New Haven, Conn. (06504)
1948. Livingood, Clarence S., Henry Ford Hospital, Detroit, Mich. (48202)
1932. *Lukens, Francis D. W., Apt. 45 Neville House, 552 N. Neville St., Pittsburgh, Pa. (15213)
1965. McCarty, Daniel J., Jr., University of Chicago, Chicago, Ill. (60637)
1948. McLaughlin, John T., 655 N. Central Ave., Glendale, Calif. (91203)
1950. Mackmull, Gulden, 4347 S.W. Flower St., Portland, Oregon (97221)
1942. Manges, Lewis C., Jr., R. D. 2, Windsor, N.Y. (13865)
1959. Maniglia, Rosario, Holy Spirit Hospital, Camp Hill, Pa. (17011)
1953. Margolies, Michael, 567 E. Chestnut St., Coatesville, Pa. (19320)
1955. Margolies, M. Price, 379 E. Chestnut St., Coatesville, Pa. (19320)
1935. Mason, James B., 1730 S. Jackson St., Tacoma, Washington (98465)
1939. May, Hans, P. O. Box 1477, Christiansted St. Croix, U.S. Virgin Is. (00820)
1932. Meade, Richard H., Jr., 750 San Jose Dr., Grand Rapids, Mich. (49506)
1936. Middleton, William Shainline, 2114 Adams St., Madison, Wisc. (53705)
1946. Miller, Franklin R., Snyder-Jones Clinic, First Nat. Bk. Bldg., Winfield, Kansas (67156)
1949. Motley, Hurley L., 1212 Shatto St., Los Angeles, Calif. (90017)
1958. Nealon, Thomas F., Jr., St. Vincent's Hosp. & Med. Center, 170 W. 12th St., N.Y., N.Y. (10011)
1960. Ojers, Gaylord W., 35 E. Elizabeth Ave., Bethlehem, Pa. (08018)
1956. Oppenheimer, Albert, 224 E. Main St., Moorestown, N.J. (08057)
1968. Ovedoff, David L., SK&F Labs. Ltd., PO Box 89–90, Brookvale, N.S.W., Australia
1968. Pareira, Morton D., 70-105 Wonder Palms Rd., Cathedral City, Calif. (93324)
1959. Pendergrass, Henry P., Massachusetts General Hospital, Boston, Mass. (02114)
1950. Pincus, Irwin J., 610 N. Roxbury Drive, Beverly Hills, Calif. (90210)
1958. Rachlin, Lillian, 370 Golden Oak Drive, Portola Valley, Calif. (94026)
1966. Rahn, Elsa Kertesz, 363 Hempstead Ave., Rockville Center, N.Y. (11570)
1959. Raventos, Antolin, Univ. Calif. Med. Sch., Davis, Calif. (95616)
1938. Read, Hilton S., 5407 Atlantic Ave., Atlantic City, N.J. (08406)
1964. Reed, Miriam, 253 Witherspoon St., Princeton, N.J. (08540)
1958. Reinhardt, David J., III, 400 Bay Ave., Lewes, Del. (19958)
1936. Reisinger, John A., 1935 Eye St., N.W., Washington, D.C. (20006)
1955. Rettew, Philip L., 612 Museum Rd., Reading, Pa. (19602)
1951. Richardson, Fred MacD., South Side, Route 23, Claverack, N.Y. (12513)
1961. Richardson, Herschell E., 205 Mayerline St., Houston, Texas (12513)
1947. Rogers, Arthur Merriam, 1351 Durwood Drive, Charlotte, N.C. (28203)
1965. Rowe, Daniel S., 127 Laurel Crest, Madison, Conn. (06443)
1941. Royster, Hubert A., Jr., Watts Hospital, Durham, N.C. (27705)
1954. Sampson, Martin C., Sampson Associates, 108 Orange Rd., Montclair, N.J. (07042)
1936. Sands, Joseph Evans, 135 107th St., Stone Harbor, N.J. (08247)
1945. Schell, James F., 506 Sharpley Lane, Wilmington, Del. (19803)

* S. Weir Mitchell Associate.

1958. Schreck, Kenneth M., 1403 Dauphin Ave., Wyomissing, Pa. (19610)
1963. Schumacher, L. Richard, 14 B Memorial Dr., Doylestown, Pa. (18901)
1941. Shands, Alfred R., Jr., Alfred I. duPont Institute, P.O. Box 269, Wilmington, Del. (19899)
1964. Sharpe, William D., 227 E. 19th St., N.Y., N.Y. (10003)
1950. Shiffer, Paul H., Dreher Ave., R. D. 5, Box 5, Stroudsburg, Pa. (18360)
1964. Shimkin, Michael B., Dept. Community Med., Univ. of Calif. Med. Sch., La Jolla, Calif. (92037)
1951. Shorey, Winston K., 7117 Shamrock Drive, Little Rock, Arkansas (72205)
1933. Smelzer, Donald C., 207 E. Orange St., Lancaster, Pa. (17602)
1954. Smith, Charles W., 128 State St., Harrisburg, Pa. (17101)
1955. Smith, J. Winslow, 824 Coventry Drive, Boca Raton, Florida (33432)
1952. Steiger, William A., 1732 Sir William Osler Drive, Virginia Beach, Virginia (23454)
1942. Stengel, Alfred, Jr., Maple Ave., Katonah, N.Y. (10536)
1955. Stevenson, Theodore D., R.D. 1, Box 201 P, Swannanoa, N.C. (28778)
1931. Stiles, Merritt H., E. 406 14th Ave., Spokane, Wash. (99203)
1934. Summey, Thomas J., Marrowdale Farm, Rt. 2, Charlottesville, Pa. (22901)
1961. Sunderman, F. William, Jr., Univ. of Conn. Sch. Med., Dept Laboratory Med., Drawer B, Newington, Conn. (06111)
1965. Swartley, Robert N., 119 E. Webster St., Colusa, Calif. (95932)
1931. Taylor, Norman H., Queen of the East, E. Broadway, Hamilton, Bermuda
1928. Thomas, J. Earl, Loma Linda University, Loma Linda, Calif. (92534)
1942. Thompson, Wesley D., 247 E. 3rd St., Lewistown, Pa. (17044)
1941. Tompkins, Pendleton, Suite 202, 101 S. San Mateo Dr., San Mateo, Calif. (94401)
1954. Turner, Linton W., 16 Bay Road, Ocean City, N.J. (08226)
1937. Uhle, Charles A. W., 1005 Westover Rd., Wilmington, Del. (19807)
1956. Watkins, E. Lloyd, 1000 Gardens Parkway, Ocean City, N.J. (08226)
1941. Weaver, Ruth H., 108 Atlantic Ave., Atlantic City, N.J. (08401)
1957. Webster, Marie, 330 Winding Way, San Francisco, Calif. (94112)
1966. Wentzler, J. Donald, R.D. #2, Muncy, Pa. (17756)
1959. Whayne, Tom F., University of Kentucky Medical Center, Lexington, Ky. (40506)
1966. White, Richard K., 1702 Walnut St., Allentown, Pa. (18104)
1936. Wilder, Theodore S., 18 Wildwood Dr., Sherborn, Mass. (01770)
1935. Willard, John H., R.D. #1, Box 95, Sanibel, Fla. (33957)
1949. Willson, J. Robert, University of Michigan Medical Center, Ann Arbor, Michigan (48104)
1948. Winston, Julius, 1616 Pacific Ave., Atlantic City, N.J. (08400)
1963. Wood, Horatio C., IV, 2600 Euclid Ave., Cincinnati, Ohio (45219)
1941. Young, Barton R., 2324 Bath St., Santa Barbara, Calif. (93105)
1953. Zarafonetis, Chris J. D., Simpson Memorial Institute, University of Michigan, Ann Arbor, Michigan (48103)

Honorary Fellows

Limited to fifty, of whom twenty may be foreigners.

American

ELECTED

1967. Bell, Whitfield J., Jr., ph.d., litt.(hon.), ll.d.(hon.), American Philosophical Society, Independence Square (19106)
1964. Corner, George Washington, m.d., sc.d.(hon.), ll.d.(hon.), litt.d.(hon.), 1810 Rittenhouse Square (19103)
1959. Fay, Marion S., ma., ph.d., sc.d.(hon.), ll.d.(hon.), Medical College of Pennsylvania, Henry Ave. & Abbottsford Rd. (19129)
1965. Gurin, Samuel, ph.d., sc.d.(hon.), University of Florida, Gainesville, Fla. (32601)
1971. Handy, Margaret Irving, m.d., sc.d.(hon.), 1415 Delaware Ave., Wilmington, Delaware (19806)

FOREIGN

1955. MANN, IDA, M.A., D.SC., M.B., B.S., L.R.C.P., D.O.M.S., F.R.C.S., Ophthalmic Consultant to the Government of W. Australia, 56 Hobbs St., Nedlands, Perth, W. Australia.

Honorary Associate Fellows

1955. DIEMAND, JOHN A., President, Insurance Company of North America, 1600 Arch St. 19102)
1971. LANG, OLGA ELLEN, 1527 Pine St. (19102)
1967. ROSENWALD, LESSING, J., 1146 Fox Chase Rd., Jenkintown, Pa. (19046)
1967. WINTERSTEEN, MRS. JOHN, 1425 Mt. Pleasant Rd., Villanova, Pa. (19085)

Necrological List

Resident Fellows	*Date of Election*	*Date of Death*
Bellet, Samuel	January 8, 1947	December 13, 1971
Campion, Richard J.	April 5, 1944	October 29, 1971
Cohen, Louis B.	October 4, 1949	June 15, 1971
Gershon-Cohen, Jacob	May 5, 1941	February 6, 1971
Grahn, Henry V.	January 2, 1957	June 12, 1971
Hanes, William J.	October 1, 1947	December 6, 1971
Israel, S. Leon	April 2, 1947	December 23, 1971
Llewellyn, Thomas H.	October 7, 1936	August 10, 1971
Murphy, Douglas P.	January 6, 1930	December 12, 1971
Schnabel, Truman G., Sr.	December 5, 1917	August 27, 1971
Sharpless, Frederic C.	May 7, 1928	November 16, 1971
Shepherd, Samuel G.	October 2, 1946	September 10, 1971
Silverman, Daniel	November 6, 1963	November 2, 1971
Spelman, Joseph W.	February 6, 1957	February 9, 1971
Widmann, Bernard P.	January 7, 1925	February 26, 1971

Non-Resident Fellows	*Date of Election*	*Date of Death*
Allman, David	January 7, 1953	March 30, 1971
Estes, William L., Jr.	April 5, 1944	June 15, 1971
Faller, Constantine P.	May 14, 1952	August 2, 1971
Paul, John Rodman	January 11, 1926	May 6, 1971
Sweeney, Francis X.	February 6, 1952	September 7, 1971

Honorary Associate Fellow	*Date of Election*	*Date of Death*
Pew, J. Howard	April 1, 1964	November 27, 1971

(Suggested Form of Bequest)

I hereby give, devise, and bequeath to The College of Physicians of Philadelphia a charitable educational association organized under the laws of the Commonwealth of Pennsylvania and the executive offices whereof are located in the City of Philadelphia, the sum of.....

a. which sum shall be used for the general purpose of said association;

b. which sum shall be added to and become a part of the general endowment fund of said association;

c. which sum shall be used by said association preferably for the following purposes:

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